UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY
CIVIL ACTION NO 16-MD-2738(FLW)(LHG)

IN RE JOHNSON & JOHNSON POWDER PRODUCTS MARKETING, SALES PRACTICES.	:	DAUBERT HEARING JULY 24, 2019 VOLUME 3

CLARKSON S. FISHER UNITED STATES COURTHOUSE
402 EAST STATE STREET, TRENTON, NJ 08608

B E F O R E: THE HONORABLE FREDA L. WOLFSON, USCDJ

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BEASLEY ALLEN, ESQUIRES
BY: P. LEIGH O'DELL, ESQUIRE (ALABAMA)
-and-
ASHCRAFT & GEREL, ESQUIRES
BY: MICHELLE A. PARFITT, ESQUIRE (VIRGINIA)
-and-
MOTLEY RICE, ESQUIRES
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NATHAN D. FINCH, ESQUIRE (WASHINGTON D.C.)
-and-
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On behalf of Plaintiffs Steering committee

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JULIE L. TERSIGNI, ESQUIRE (NEW JERSEY)
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PROSKAUER ROSE, ESQUIRES
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(Continued.)

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A P P E A R A N C E S C O N T I N U E D

WEIL GOTSHAL & MANGES, ESQUIRES
BY: ALLISON M. BROWN, ESQUIRE
On behalf of Defendant Johnson & Johnson

SEYFARRTH & SHAW, ESQUIRES
BY: THOMAS L. LOCKE, ESQUIRE (WASHINGTON D.C.)
On behalf of Defendant Personal Care Products Council

M O R N I N G S E S S I O N

(In open court.)

THE DEPUTY CLERK: All rise.

THE COURT: Thank you.

Good morning. Everyone may be seated.

Are we ready?

MS. BROWN: Before we begin, I did want to raise one issue regarding Dr. Longo's testimony with the Court.

Could we perhaps ask Dr. Longo to leave before I do that?

THE COURT: Yes.

(Dr. Longo leaves the courtroom.)

MR. BLOCK: Your Honor, my name is Jerome Block, and I'm from the firm of Levy Konigsberg. I will be assisting the Plaintiffs Steering Committee and I will be presenting Dr. Longo's testimony.

Thank you, your Honor.

MS. BROWN: Good morning, your Honor.

I'm Alli Brown from Weil Gotshal for J&J.

Counsel was kind enough to just provide me a few minutes ago with a copy of the PowerPoint they intend to use with Dr. Longo; and in looking through it, I have a couple of concerns that I wanted to raise

now.

A number of the slides deal with internal Johnson & Johnson company documents. I would submit to the Court that Dr. Longo's interpretation of those documents is not relevant to the inquiry here. He is a materials scientist who plaintiffs are putting forward as an expert witness on his own testing of Johnson & Johnson samples. He has no personal knowledge about these decades old documents. He has no particular expertise that would allow him to interpret these company documents.

In fact, your Honor, as it relates to a number of the documents that are contained in counsel's PowerPoint presentation, Dr. Longo himself has testified as recently as a month or two ago that essentially the interpretation of those documents is an issue for the trier of fact.

So I would submit, putting Dr. Longo up to interpret documents that he doesn't know anything about and has no expertise to interpret is inappropriate in this setting and should not be done here.

MR. BLOCK: Good morning, your Honor.

Any documents that are internal documents or historical documents that are going to be presented

today with Dr. Longo's testimony were, first, either referenced in his report or were part of his reliance materials in this MDL.

The relevance of the documents that we are going to present -- and I think it will be helpful to the Court to see them in context as we go -- is that these documents go directly to the issue of the methodology, the reliability of the methodology.

For example, we have one -- it is slide 20 -- that shows the heavy liquid separation preparation method used by a consultant from Johnson & Johnson back in 1974 and being used the same way in which Dr. Longo has used it in this case, being used in the same way as Dr. Alice Blount used that same method in 1991, being used in the same way as ISO, the International Standard Organization specifies that it be used.

THE COURT: Let me just short circuit. I understand where everybody is on this point. If he has cited them in his report, I'll let him reference them. I understand I'm not going to accept how he may interpret a document. We don't have a jury here. So I think I can filter this out appropriately and know when he may be overstepping, and when he says that a particular test was done, and, yes, it has been done

for 50 years, and look J&J did it as well, I'm sure you will cross him whether that is the same test or not.

Let's get it in and let's go.

MS. BROWN: Thank you, your Honor.

MR. BLOCK: We're ready to proceed.

THE COURT: Bring the witness in.

(Dr. Longo enters the courtroom.)

(Pause.)

WILLIAM E. LONGO, called as a witness on behalf of the plaintiffs, having been first duly sworn, testifies as follows:

DIRECT EXAMINATION

BY MR. BLOCK:

Q. Dr. Longo, good morning.

A. Good morning, sir.

Q. Dr. Longo, can you state your full name for the record.

A. William Edward Longo.

Q. Dr. Longo, where do you live and work?

A. I live in Alpharetta, Georgia, which is right outside of Atlanta, and I work in Suwanee, Georgia, which is another suburb outside of Atlanta.

Q. What is your employment and title at the company?
A. I work for a company called Materials Analytical Services and I am the president.
THE COURT: Keep your voice up. I have been told those in the back of the Court cannot hear. I need everyone in the courtroom to hear. I know you testify regularly. I know you know how to do it.
Q. Before we talk about your company Materials Analytical Services, I would like you to tell the Court about your education and your background, starting with undergrad, going to your Master's and Ph.D..
A. I went to the University of Florida, got a Bachelor's and Major in microbiology with a Minor in chemistry.
I went to graduate school at the University of Florida. I got a Masters in materials science and engineering and then I graduated in 1983 with a Ph.D. or Doctorate in materials science and engineering.
Q. What is the field of materials science and engineering that you have a Master's and Ph.D. in?
A. It is literally the study of materials both to characterize them, to understand them, and to develop new materials. These materials can usually be broken

down into five major groups: metals or metallurgy, polymers or plastics, minerals, ceramics, such as asbestos, composites where you may mix two of these types together, putting metal spheres in with a polymer to change what it can do and behave, and biomaterials. These are things that are implanted into the body.

As a materials scientist we are educated and taught in practice on where are the best types of materials to use in a situation that it is needed in. For example, a civil engineer and a mechanical engineer will probably go to a materials scientist on what is the best concrete strength if they are going to build a bridge, how strong is the concrete they need for the specifications, what type of metal for the structures out there, can it stand up to corrosion, and so on.

Materials scientists also develop a lot of new materials. A simple example is if you are my age, you can remember when soda cans were steel and had a seam down the back side of it to put the cylinder together, and also had a second piece for the top and a third piece for the bottom. Materials scientists came up with what we call Aluminium Cans, which is a copper aluminum alloy that was made that you could make it

in two pieces.

Q. Let's talk about your experience testing materials for asbestos. When did that begin and how did you get your start testing materials for asbestos?

A. The very first air sample I tested for asbestos was in 1984, air sample. I got involved in it because I read an article by Walter C. McCrone about using phase contrast microscopy to analyze air samples to determine how much asbestos was in it, and I thought transmission electron microscopy would be better.

Literally, the first company I was involved in opened its doors in October of 1983, about two months before I graduated and got my Ph.D.

Q. Did you have training during your graduate school programs at the University of Florida in analyzing materials for asbestos or analyzing other materials using what's called a transmission electron microscope?

A. The first part of the question is no. We weren't analyzing asbestos samples in graduate school. But in our materials science department we had two transmission electron microscopes: one scanning electron microscope, X-ray diffraction; and as a graduate student, you are expected to use all those instruments.

We did graduate level training in transmission electron microscopy, how to do diffraction; selected area of diffraction, energy dispersive and the science behind it. The same with scanning electron microscopy -- not asbestos, but mineral particulates that you would have to characterize the same way you do asbestos fibers.

Q. When did you obtain your Ph.D. in materials science and engineering?

A. I graduated in December 1983.

Q. How do you then begin to analyze materials for asbestos -- and you mentioned a company that you started after graduating with your Ph.D. in 1983?

A. Yes. I started a company called Microanalytical Laboratories, which was a materials science small company with a -- first with a scanning electron microscope and a transmission electron microscope. A little bit less than a year later, when we started focusing on trying to educate and have people use our facility to analyze air samples for asbestos, that's when the first sample came in.

THE COURT: Can everybody hear Dr. Longo?

Q. Dr. Longo, tell us a little bit more -- before we get to your work at MAS, tell us about your personal experience analyzing materials for asbestos

at this first company called Microanalytical, and how long did you have that first company for?

A. When we started getting air samples for asbestos analysis, I was the primary technician. As the person that prepared the samples, analyzed the samples, that was from 1984 until I left that company in August of 1987. I don't know how many hundreds or thousands of samples that were done, hundreds to thousands of air samples done over those three years. So I had quite a bit of experience doing that. We had a technician we finally hired that was also doing it because the laboratory was getting very busy.

Q. Have you been involved in the testing of materials for asbestos now for about 35 years?

A. Yes, sir.

Q. Let's talk about your company Materials Analytical Services. How did that company get started and how big was it when it began, and how did it evolve over time?

A. We opened the doors in February of 1988, and I got involved with it after I left Microanalytical Laboratories. I had a partnership with a big engineering firm called Law Engineering, not lawyers, but Thomas E. Law was the individual who started that company. So we started with a 4000-square foot space,

and I had three employees -- myself, a receptionist, and one technician.

In 2006 the company grew to almost 100 people. We had a main laboratory outside of Atlanta. We had a materials science semiconductor laboratory in North Carolina. We had a semiconductor laboratory in Phoenix. We had a semiconductor laboratory in San Jose and consulting offices in California and Washington, D.C. where we had employees that were in both of those.

Q. Can you tell Judge Wolfson basically the current setup of Materials Analytical Services in terms of the space you have and how many people you employ and what type of professionals do you employ at MAS?

A. After 2006 we had only the Suwanee office which is a 20,000 square foot laboratory that has multiple transmission electron microscopes, multiple scanning electron microscopes, optical microscopes, as well as all -- a lot of other types of analytical equipment for organic analysis.

The staff is made up of the administration people and technicians. We have microbiologists, we have other materials scientists, we have physicists, we have biologists, we have geologists -- I don't want to leave anybody out -- inorganic chemists, organic

chemists, and optical microscopists who have degrees in geology, or something related, electron microscopist specialist.

I think that covers it. We have approximately 43 people currently.

Q. Does Materials Analytical Services only test materials for asbestos, or do they do a broader range of work and have they done a broader range of work presently and over time?

A. We do a broader range of work. Asbestos is still one of our key samples that we analyze, but we also analyze and do work for environmental testing for metals, organics.

The volatile organic compounds, VOC testing, such as the green labeling that is being done across the country where companies want to understand what is being released from the products that are made that have volatile organic compounds.

For example, the new car smell that everybody likes. That's volatile organic compounds being released by the plastic rugs; it is supposedly not that good for you. We do a lot of that and certifications.

We also do materials science work, semiconductor work, failure analysis outside of the

area of asbestos. We work not for the FDA, but we do work in pharmaceutical areas where we have an FDA laboratory number.

So our laboratory can analyze and receive prescription drugs from Schedule 2 on down and store them so that we also have a DEA license so we can receive these materials and test it. So we're pretty broad-ranged.

Q. Dr. Longo, looking at your slide here, it has EPA Peer Review Group, and, in a parenthetical, it says "asbestos." Have you ever been selected to serve on any EPA peer review group related to asbestos or asbestos-testing methodology?

A. Yes.

Q. Can you tell the Court about that.

A. I was on initially the EPA peer review group for their asbestos engineering program where scientists from this country as well as Canada were invited to come to the Environmental Protection Agency office in Cincinnati and provide opinions, guidance on where the Environmental Protection Agency should put their research into to solve asbestos problems.

Q. Was that a group of professionals that had expertise in the methodologies for testing asbestos or samples to determine if they had asbestos?

A. It is more broad than that. It is not only testing asbestos, testing samples for asbestos, but it was managing asbestos projects, suggestions on removing asbestos. So it was broad range.

The second panel I was on was EPA invited just microscopists to help them develop a method for analyzing building dust for asbestos.

Q. Going back to the first one, you said "EPA Peer Review Group Panel." How many other professionals were selected to serve on that EPA Peer Review Panel?

A. For the small working group there were four to five.

Q. When was that?

A. That was in late 1980s, '89, '90, and I think the last one was in 1991 or so.

Q. You began to tell the Court about another collaboration with the EPA on developing a particular test method. Can you tell the Court about that?

A. EPA was interested in getting a standardized method for analyzing asbestos contaminated building dust or dust not in a building where they could measure and determine the concentration of asbestos structures per area of dust that they sampled. We worked on that for multiple days. They issued a draft report and then decided that the best avenue to get

this into the public domain was to go and put it into the ASTM committee.

Q. Why was that important from a public health standpoint developing a method to look at dust that had settled on the surface in a building to determine if it contained asbestos; and, if so, how much asbestos?

A. It was important in that if you had asbestos in buildings at this time period, you had to manage it -- meaning, if you had fireproofing asbestos, fireproofing up in the building, and you have a drop ceiling, like we have here, over time that fireproofing will release asbestos dust just from building vibration, from age, from gravity, and the top of the ceiling tiles get contaminated with asbestos dust.

Workers who have to remove ceiling tiles or change lights have to know there is significant contamination on these ceilings, or a building that has asbestos fireproofing where you don't have a ceiling -- like mechanical rooms, et cetera, the dust that's being released causing contamination. So this gave a method you could make those measurements and they wanted to standardize it.

Q. Did that initial collaboration you had with the

EPA on developing this method ultimately turn into what's known as ASTM 5755, or D-5755?

A. Yes, sir.

Q. Did you take any leadership role -- or what was your role in the authorship or the creation of the ASTM testing method?

THE COURT: When was this?

THE WITNESS: This started in 1990 and ended in 1995.

Q. What does ASTM stand for?

A. It is the American Society For Testing of Materials. It is now always ASTM International. I still call it the American Society of Testing Materials.

Q. In testing materials for asbestos, why is it important to have published standards such as standards from the ASTM?

A. It is important that if you are using an ASTM method and you say you are using the D-5755, then other labs who are familiar in using that method you can compare the results. So you are standardizing the testing because changing the testing method can change the result. So you always want to have a standardized method like this where everybody understands what is being done, how the recipe goes from A to Z, and the

meaning of the results.

Q. All right. Can you just briefly tell us -- we have a slide here which has the cover page of ASTM D-5755, and it has a number of signatures on it, and it has some bullets about your involvement.

Can you tell us about the process of creating the standard and what the signatures on the cover page represent to you?

A. Creating a standard that everybody agrees on is a long process. You essentially have a subcommittee, the committee, then the overall membership of ASTM. Getting a standard through, you have to get agreement from all the scientists who are present and nonscientists. One negative vote can send this back to rewrite.

So after six months a new document would go out for voting. It wasn't so much on the actual how to do the method; it is the language that goes into it. My opinion, it is one of the most peer-reviewed documents, ASTM standards out there.

Q. Does the ASTM-5755 method contain a test protocol for testing asbestos materials with the transmission electron microscope?

A. Yes, sir, it does.

Q. Is that one of the methods you followed in this

case in testing Johnson & Johnson's talc for asbestos?
A. Yes, sir.
Q. Today will we be going through portions of this ASTM 5755 and showing the Court portions of this standard and showing how you follow this standard in testing Johnson & Johnson talc for asbestos?
A. Yes, sir.
Q. The slide says: "Leadership on ASTM D-22 committee and D 2008.07 subcommittee on sampling and analysis of asbestos." What does that mean and what was your leadership role in that?
A. It was our dust method we had developed in our laboratory that ultimately became the method of choice. Since we had already been using something very similar, I was chosen, volunteered to shepherd this through the subcommittee to get it to a standard. That involved five years and hundreds and hundreds of man hours to get agreement across the board from all the different scientists and others on the committee. We would put it together, vote on it; if there was negatives, the next meeting you work through the negatives, and so on and so forth.
Q. In terms of achieving a scientific consensus on the ASTM 5755, did that involve obtaining the agreement of the others in voting on the standard and

serving on the committee?
A. Yes.
Q. Did that include Drew Van Orden?
A. It did.
Q. Is Drew Van Orden with a group called RJ Lee who serve as experts for Johnson & Johnson in talc cases?
A. Yes.
Q. Did that include someone named Slim Thompson who is a representative of the industry of a company that mines and produces talc?
A. Dr. Thompson, that was his nickname, "Slim."
Q. Did that include Dr. Jim Millette who has published in the literature and used to work for the EPA and studied the issues of asbestos and talc?
A. Yes.
Q. Did that include Michael Beard?
A. Michael Beard was in charge of the analytical side at the Environmental Protection Agency for asbestos. After he passed away, we now have the Michael Beard Conference on asbestos in Johnson, Vermont, every two or three years.
Q. Going back to this cover slide here, can you tell the Court about the certifications that Materials Analytical Services has that are relevant to the testing of materials for asbestos? What

certifications does MAS have?
A. The primary certification for testing of asbestos is the NVLAP, which stands for the National Voluntary Laboratory Accreditation Program that's run by NIST, the National Institute of Standard and Technology. That is the certification for analyzing asbestos bulk samples and asbestos air samples by TEM on behalf of the EPA for their AHERA regulations Asbestos Hazard Emergency Response Act.
Q. How did your lab obtain the certification from NVLAP as it relates to asbestos, and how does your lab continue to be recertified for testing asbestos?
A. After the AHERA Act was passed, I think in 1988 or so, they knew they had to get a certification process going. When that started -- I forget if it was '89 or '90 or '91 or so, we started participating. Really, you have to do certain types of analysis, certain types of checklists, quality control, and so on and so forth, put it together; then every two years or so, an auditor will come to your laboratory and spend a week there looking at all the documents and see how well you are following their protocols for keeping that accreditation.
Q. Is your lab certified by a group called AIHA, and what does that stand for?

A. That's the American Industrial Hygiene Association. We have their certification for doing phase contrast microscopy for asbestos fibers or fibers. PCM it is called. They also certify us in a lot of organic chemical analysis and a lot of inorganic analysis, as well as mold analysis. We had that I think since 2000 maybe.

Q. Is your lab certified by a group called ISO, the International Standard Organization? Can you tell us about that?

A. We have some ISO certifications that's run by the American Association of Independent Labs. For certain types of analysis that we do for VOC, volatile organic compound analysis, and we also are certified to look at others who test for volatile organic compounds, and furniture and materials that certify the analysis is okay.

Q. Does your lab have an FDA lab number, and can you tell us what that is, and describe the process that MAS had to go through to obtain that?

A. Getting the FDA lab number is essentially registering, sending in your QAQC manual and other things.

Q. What is "QAQC" and how did you refer to that?

A. Quality Assurance and Quality Control. They

pretty much leave you alone until at some point they will audit your laboratory to make sure you are following the rules and regulations.

Q. How does that work? Do they give you a certain amount of notice? How does that work when the FDA comes and looks at your lab to make sure your quality control and quality assurance is sufficiently reliable to obtain an FDA lab number?

A. The auditors show up unannounced.

Q. Now, I want to talk about some of the states, municipalities, and state agencies that you and Materials Analytical Services have consulted with specifically on issues of asbestos. Let's start with the Port Authority of New York and New Jersey as an example.

A. Beside them and others, we were asked to take a look at the asbestos fireproofing and asbestos acoustical plasters, asbestos ceiling tiles to determine if by reverse engineering these asbestos materials, fireproofing, could we determine who manufactured the product. It is called product ID, and we could. Once you get the formulations for the various fireproofing.

So New York and New Jersey, all their public buildings, including the World Trade Center, we were

able to analyze and determine who manufactured the asbestos-containing fireproofing. If it had a certain kind of ingredients, chrysotile, gypsum and vermiculite with no starch, that was W. R. Grace Monokote III.

Q. Did that involve some of the same types of analyses that you have done in testing Johnson & Johnson's talc for asbestos in terms of the type of microscopy followed and the steps followed according to the generally-accepted methods?

A. Yes, the polarized light microscopy is the standard PLM analysis, and the TEM was used to verify and identify the asbestos fibers using the standard techniques and then going further to identify the other nonasbestos minerals to compare to the formulas for those products.

Q. Can you give us a representative listing, to the best of your ability, of states, municipalities and state agencies that have hired Materials Analytical Services to analyze materials for asbestos?

A. The city of New York, the state of New York, the city of Baltimore, the city of Boston, the school district in Chicago, the state of Utah, the state of Texas, the state of Hawaii, the Los Angeles school district, the San Francisco school district, and then

individual buildings across this country, Prudential Insurance for all of the buildings they owned across this country. So hundreds and hundreds, thousands of buildings we were asked to see if we could determine who manufactured the asbestos products.

Q. Do you think you could sort of give us a brief summary, maybe 30 seconds or so, on any work that MAS has done for the CDC, NIH, NASA, and the Air Force, if it doesn't relate to asbestos, but just give us a general overview of work for those entities.

A. For the Center of Disease Control and National Institutes of Health we did some high resolution scanning electron microscopy work for them. They wanted to image in one case the Ebola virus and the other case, the AIDS virus.

NASA was some work we did for an X-ray telescope they were going to launch that had to have very precise analytical work done on chips they were using.

The Air Force was to look at some chips that had to be essentially fixed by removing areas microscopically and generating microscopic jumper cables to get around types of areas there that were not working.

THE COURT: Mr. Block, I don't want to

interrupt your presentation. As you know, we have a limited time period today, and, frankly, we spent about 45 minutes, a little bit of it was about TEM, but if you want to be helpful to me, I would like to get to the substance of what we are doing today.

MR. BLOCK: I sure will, your Honor.

May I have a minute to address Dr. Longo's work in litigation? I know it will be brought up on cross.

THE COURT: That's fine. You are going to eat into your own time before you get to what you want me to hear.

Q. Dr. Longo, have you done work in litigation for states, municipalities and state agencies including ones you have named today?

A. Yes, sir.

Q. Relating to the analysis of asbestos?

A. I have.

Q. Have you been working for corporate defendants in analyzing materials for asbestos including General Electric?

A. Yes, sir.

Q. Has General Electric come to you when there was an allegation that there was asbestos that would be released when people used their hair dryers, and have

you done that analysis for General Electric?
A. Yes, sir I have.
Q. Have you done work for Scotts, Scotts fertilizer, in cases where there was an allegation their materials released asbestos into the air?
A. Yes, sir.
THE COURT: Can I get time periods for these as well when you were doing that kind of work? For instance, GE you mentioned. When did you do that?
THE WITNESS: The GE work has been in the last five years.
THE COURT: All right.
Q. And Scotts fertilizer, was that a case where you were the opposing expert where my law firm brought the case?
A. Yes, sir.
Q. Where one of my law partners Moshe Maimon, he took your deposition in that case; didn't he?
A. Yes, sir, he did.
Q. And you have done work on behalf of plaintiffs and hired by plaintiffs law firms, like my firm Levy Konigsberg. Correct?
A. That is correct.
Q. Are the methods that you used -- no matter if you are hired by a corporation, a defendant in

litigation, a state agency or individual plaintiffs, does your reliance on the generally-accepted methods differ depending on who hires you?

A. No, it doesn't.

Q. Dr. Longo, I'm sure you will be asked, and I think in the briefs in this case you may have been referred to as the $30 million man. Have you heard yourself referred to as the $30 million man by Johnson & Johnson?

A. A number of times.

Q. Now, in the course of over 30 years, has Materials Analytical Services, the company billed out about $30 million for work on behalf of plaintiffs in asbestos litigation, which comes to about a million dollars a year?

A. Yes, sir, it has.

Q. And does MAS have substantial expenses in terms of the payroll of all those professionals that you identified earlier?

A. Of course.

Q. Does MAS have to purchase the most state of the art equipment, such as transmission electron microscopy, to make sure its scientific methods use the best equipment available?

A. We have to keep the equipment up to date or at

least modified to work up to date.
Q. How expensive is a state of the art TEM microscope, the type MAS has to purchase from time to time?
A. When we first purchased the ones we have, they were a quarter of a million dollars. We purchased one last year that was $750,000, but determined that it did not work as well as the older ones, and we sent it back.
Q. Dr. Longo, quickly, and I want to note for the Court it is in the tabbed notebook, if the Court wishes to look at it.
We have your CV, and does your CV set forth peer-reviewed articles you have written on asbestos and other topics?
A. Yes, sir.
Q. And also scientific presentations you have given?
A. Yes, it does.
Q. We have also included for the Court a tab 2, which lists cases in which you have testified in which there have been some sort of Daubert, Frye, or other scientific challenge to your testimony. Is that a list your office generated?
A. Yes, sir.

Q. We highlighted the rows in yellow on tab 2 that relate to Johnson & Johnson cases.

The next slide, does this show 17 occasions now where you have testified involving your findings of asbestos in Johnson & Johnson's talc?

A. Yes, sir, it does.

Q. In those 17 cases did you testify about the same generally-accepted methodologies that you used that you are prepared to testify in this case and that you have set forth in your expert report?

A. Yes, sir.

Q. And just to note, has it now been seven states -- California, New Jersey, Missouri, Oklahoma, South Carolina, New York, Kentucky -- were you in Kentucky yesterday testifying?

A. In Louisville.

Q. Was that a Daubert hearing in that case?

A. Yes, sir.

THE COURT: Was that state court?

MR. BLOCK: Yes, sir.

THE COURT: New Jersey didn't follow Daubert until last year.

MR. BLOCK: I think most of the courts follow Daubert.

THE COURT: I understand you are not prepared

to represent every one of those states follow Daubert. New Jersey did just change in the last year.

MR. BLOCK: Yes, I understand that.

Q. Dr. Longo, in terms of state versus federal court, have you testified on many occasions in federal court where there is a Daubert or Frye challenge to your testimony before taking the stand?

A. Yes, sir.

Q. Is that listed on tab 2?

A. It is.

Q. Dr. Longo, I would like to ask you what is asbestos, and I would like you to explain to the Court what is on this slide. It has Table 3, "Chemical Formulas For the Asbestos Minerals." What does this slide show and where did this image come from?

A. The slide shows what the chemical formulas are for these particular minerals. Asbestos is a trade name, and it encompasses these specific minerals, which are labeled asbestos if they are fibrous.

Q. This says "asbestos minerals," and it comes from the McCrone Particle Atlas. What is that?

A. That was an atlas that just not only had asbestos but provided a lot of information on how to analyze minerals using polarized light microscopy. Dr. Walter McCrone, in my opinion, during his time,

was one of the best microscopists in the world.
Q. Was Walter McCrone in terms of this particle atlas, was he a consultant for Johnson & Johnson for decades, including at the time of this publication in 1980?
A. I'm not clear he was actually a consultant. I know his laboratory for decades, McCrone Associates, did work for Johnson & Johnson. He pretty much was running the McCrone Research Institute at a time after -- about sometime in the '60s and '70s.
Q. We have circled three of these asbestos minerals which shows the chemical formula for these asbestos minerals. Why did we circle these three in particular as it relates to Johnson & Johnson talc?
A. These are the three asbestos minerals that have been identified over the years, not only by Johnson & Johnson in their laboratories, but it's the general type of asbestos that our laboratory is finding in the talcum powder that's in Johnson & Johnson.
Q. Are these three types of asbestos minerals -- tremolite, actinolite, anthophyllite known as amphiboles?
A. Yes, sir, they are.
Q. Are they specifically identified in the published literature and in materials you rely upon

and that people in your field regularly rely upon as being the types of amphiboles that are known as asbestos minerals, these particular types of amphiboles?

A. Yes, sir.

Q. Now, in terms of an asbestos mineral, and whether it can be called asbestos or asbestiform, what does this next slide show from the McCrone Particle Atlas?

A. In order to be called asbestos, or if you want to say asbestiform, this shows it has to be fibrous.

Q. So on one side it says, for example, fibrous tremolite would be asbestos, and then does it say the same thing for fibrous actinolite and fibrous anthophyllite?

A. Yes, sir it does.

Q. If an asbestos mineral such as tremolite, actinolite and anthophyllite is fibrous, is it asbestos?

A. Yes, sir, it is.

Q. On the other hand, if it is non-fibrous, such as non-fibrous tremolite, non-fibrous actinolite, non-fibrous anthophyllite, would that be considered asbestos?

A. No.

Q. In terms of fibrous, these asbestos minerals like tremolite are fibrous, are there generally-accepted methods that allow you to determine whether it is fibrous?
A. Yes, sir, there are.
Q. If the asbestos mineral meets the chemistry of asbestos and is in the shape of a fiber, as defined by the generally-accepted methods, is it fibrous?
A. Yes. Using these methods, it has a specific geometry to be called fibrous.
Q. We'll get to this in more detail.
But is this an example of a definition of fiber from a generally-accepted method, specifically the EPA AHERA method?
A. Yes, sir.
Q. Here do they define fiber as being at least 0.5 microns in length and having an aspect ratio of at least 5-to-1?
A. Yes, it does.
Q. What is a "micron"?
A. A micron is one -- is the distance equal to 1 millionth of a meter. If you think about a yard stick, and a meter is approximately 3.3 feet, you would have to slice that 3.3 feet 1 million times evenly, and that would give you 1 micron or

1 micrometer.
Q. One more requirement here in the EPA AHERA, it says:
"And substantially parallel sides," and so according to EPA AHERA is fiber defined as at least 0.5 microns in length and having an aspect ratio of 5-to-1 or greater and substantially parallel sides.
A. Yes, sir.
Q. In terms of the aspect ratio, can you explain to the Court what that means? It talks about length versus width.
A. The aspect ratio is nothing more than, say, this laser pointer. The length has to be five times equal to or five times greater than the length or the width. You take the length, divide it by the width; that will give you the aspect ratio.
Q. Now, is it important to understand in terms of understanding the generally-accepted test methods that asbestos fibers are very small?
A. Small in that you cannot see -- you cannot visually see single asbestos fibers because they are too small for the resolution of your eyes. Here is a penny. They have two or maybe rice grains which you can see. Here we have a human hair and a human hair has a diameter on average -- some lower, some higher

-- of 100 micrometers. Your eye can see a human hair that 100 micrometers allows you to visualize it. Here we have chrysotile asbestos which looks like some white dots.

Q. That's right in front of Abe Lincoln's mouth?

A. Right here. What you see, there is thousands and thousands of fibers, not individual fibers. Since the width of an chrysotile asbestos fiber is approximately .05 micrometers, so it is essentially almost a thousand times thinner than a human hair. That's what we are dealing with when we are making these measurements.

Q. Dr. Longo, why does talc --

MS. BROWN: Your Honor, I have an objection to this document as not being disclosed either in his report or his reliance list.

MR. BLOCK: Your Honor, we have a reference we can give the Court. Your Honor, this was No. 117 on appendix A for Dr. Longo. And Leigh O'Dell can talk further about it. It is part of a meet and confer process. There was no objection to 117 and we relied upon that.

MS. BROWN: Your Honor, we subsequently raised the issue with your Honor where you made the ruling, of course, that any supplemental material that was

available at the time of the report but not included in the report or listed at the time could not be included at this point, and this document falls squarely into that category.

MS. O'DELL: Your Honor, if you recall, during our conversation on Friday afternoon, I asked if an objection was raised to a particular document is that fair, and you said if there is no objection, you may use it. That is the decision we made to put it in.

THE COURT: Take it out.

BY MR. BLOCK:

Q. Without reference to the document, did you come up with the idea that talc should be tested for asbestos or is that something represented in the peer-reviewed literature going back many decades?

A. At this time, depends on what type of talc. It goes back many decades for industrial talc. We have been testing that for many years.

For cosmetic talc there was essentially --

THE COURT: Your lab has been testing for many years.

THE WITNESS: It is the royal "we."

THE COURT: You asked him the question about -- your question was: Did you come up with the idea talc should be tested?

MR. BLOCK: I withdraw the question and I'll rephrase it.

BY MR. BLOCK:

Q. In general, why does talc, a mineral that's mined from the earth, need to be tested for asbestos?

A. In general, because of the accessory minerals associated with talc that is typically either what we call the tremolite solid solution series or the anthophyllite solid solution series, and, in some cases, chrysotile asbestos. That has been mined in talc mines for some time.

Q. In contrast, a raw material such as cornstarch that has been used by Johnson & Johnson in a baby powder called Cornstarch Baby Powder, does cornstarch need to be tested for asbestos?

MS. BROWN: Objection. Lacking foundation. This is outside of his opinions. He tested J&J products. He is not a mineralogist or a geologist. He never tested cornstarch. I think we are going a little far afield with these questions.

THE COURT: Mr. Block, it was not explored by him. Let's move on.

BY MR. BLOCK:

Q. Let's talk about the testing Materials Analytical Services did for the MDL as set forth in

your report, which is tab 9 in the notebook that we have provided.

Just in general, just to summarize, did Materials Analytical Services test 71 samples that consisted of 56 -- Johnson's Baby Powder or Shower To Shower talc product containers, as well as 15 historical talc samples that represented talc that was used in Johnson & Johnson talc products?

A. Yes, sir. Just to be clear, the 71 -- or samples that came from 71 individual containers or from the railroad car. There was one MDL sample that had two samples from the same container. That would have made it 72 total samples.

Q. Were these samples that to your understanding were produced as part of the discovery process in this MDL?

A. Yes, sir.

Q. Is it your understanding those product samples were retained by Johnson & Johnson and Imerys during the time of their existence and produced in the MDL for testing by both sides?

A. Yes, sir, that's my understanding.

Q. In terms of the talc that's contained in the containers of Johnson & Johnson's products you tested and the source talc that you tested, did it include

Vermont talc?
A. It did.
Q. Is it your understanding that Vermont talc was used to make Johnson & Johnson talc products from approximately 1967 until approximately 2003?
A. Yes.
Q. Is it your understanding before 1967 and going back many decades Johnson & Johnson used Italian talc with the exception of a few years during World War II?
A. Yes, sir, that's my understanding.
Q. Is it your understanding starting in approximately 2004 going to the present, that Johnson & Johnson has used Chinese talc?
A. Yes, sir.
Q. Let's talk about the methods that Materials Analytical Services used for testing Johnson & Johnson's talc for asbestos.

Did Materials Analytical Services use test methods using the polarized light microscope?
A. Yes.
Q. And the transmission electron microscope pursuant to generally-accepted methods that MAS and yourself published on in the peer-reviewed literature?
A. Yes, sir.
Q. As we move forward, will we be talking about

some of these studies and how the methods were applied to this case, including a publication in Cancer Research in 1995 and other publications that are shown here and included in tabs 10, 11 and 12 for the Court?

A. That is correct.

Q. Now, in terms of the key concepts for testing asbestos and talc, can you talk about the first two concepts and how they influence the third item which is limit of detection/sensitivity?

A. The preparation method is key to determine how well or sensitive the analysis is going to be for both PLM and TEM. The analytical tools for PLM and TEM are the best instruments for doing this for asbestos. It has its strengths and its weaknesses. But it's all about the preparation on how sensitive your results are going to be in the TEM and PLM.

Q. In laymen's terms, does the preparation method relate to whether you are just going to put the talc that comes out of the container under the microscope or whether you are going to follow some other generally-accepted procedure preparing the talc sample in some way before you look at it under the microscope?

A. Yes. You could do both. But for the TEM analysis, the best method is to try to concentrate the

potential amphibole asbestos that might be present so that you could remove the interference of all the talc that causes a problem with the analysis.

Q. Did you use a preparation method in testing Johnson & Johnson's talc for asbestos known as the Heavy Liquid Separation Method?

A. Yes, sir, we did.

Q. Was there a publication in the peer-reviewed literature by Doctor Alice Blount published in 1991 in a journal called Environmental Health Prospectus?

A. Yes, sir.

Q. Is that part of the National Institute of Environmental Health Sciences, which is part of the U.S. Department of Health and Human Services?

A. Yes, sir, it is.

Q. At the time is it listed at the bottom of the article that Dr. Blount at that time was a professor and researcher in the Rutgers Department of Geology?

A. Yes, sir.

Q. What did Dr. Blount -- if you could quickly sum up, what did Dr. Blount report in this peer-reviewed study about the heavy liquid separation method as it specifically relates to testing talcs for amphibole types of asbestos?

A. What she reported, that using this separation

method increased the sensitivity by removing a lot of the talc particles. She estimated maybe 1 amphibole potential for every, I think it was, 100,000 talc particles.

So she reported how it increased the sensitivity and allowed her to analyze it in a much more efficient way, and showed that it is there, and by removing the talc, first, it caused her to be able to report higher sensitivities for the analysis using polarized light microscopy.

Q. We have an animation which is hopefully going to run. What are we looking at in this animation?

A. We are looking at a test tube. It shows if you put talc in it and if you then put the heavy liquid density in, then mix the talc up in the heavy liquid density, and put it into a centrifuge, spin it, and because of the density of the liquid, anything that has a lower density like talc will go to the surface. Anything that has a heavier density like the amphibole asbestos will go to the bottom of the test tube. So you are concentrating the amphibole minerals and other minerals that have the higher density at the bottom, which makes the analysis more sensitive and more efficient.

Q. Now, is amphibole asbestos, particularly the

types tremolite, anthophyllite and actinolite, the most common types of asbestos found in talc?
A. Yes, sir. It is the anthophyllite series and the tremolite series. That is the most common. Then chrysotile can be found also. For amphiboles, it is the tremolite series and anthophyllite series.
Q. Is the idea here just in laymen's terms that you put the heavy liquid into the tube, you centrifuge it and it causes the heavy minerals, which would include certain types of amphibole asbestos, to sink to the bottom, and results in the talc which is lighter to float to the top?
A. Yes.
Q. Then in terms of what you are analyzing, are you then analyzing this tip at the bottom where the amphibole asbestos is more likely to be, if it is present, and can be detected by the method?
A. Yes. That's what we removed to put onto the filters we are preparing; or the glass slides we're preparing for both polarized light microscopy as well as transmission electron microscopy.
Q. This heavy liquid preparation method for testing talc for asbestos, was it published in the open literature for the first time to your knowledge in 1991?

A. To my knowledge, that's when it was published for analyzing talc for asbestos. Heavy liquid density separation has been used for years and years and years in the mineral industry to remove different density minerals.

Q. Did it come to your attention as the result of litigation against Johnson & Johnson, including this case, in fact Johnson & Johnson had been using internally with its consultants the heavy liquid preparation method going back to the 1970s?

A. Yes, sir. As far as I can tell, it was first developed specifically for talc in 1973, I believe it was, or 1974.

Q. Were there a number of consultants where Johnson & Johnson was having confidential work done where those consultants were using the heavy liquid separation method to identify asbestos in talcs used by Johnson & Johnson for its products?

A. It is either using heavy liquid density or another type of concentration method such as flotation to try to remove the fines to increase the sensitivity.

Q. Let's look at one example, if we could, for the Court.

Is this a confidential memo produced by

Johnson & Johnson in this case, subject to a protective order, that shows the use of the heavy liquid separation preparation method on Vermont talc for Johnson & Johnson in 1974?

A. Yes, sir, it does.

Q. Dr. Reynolds states here that

"For the reasons described above, a concentration technique is mandatory because it brings the amphiboles into a reasonable concentration range for optical or other methods of analysis."

What is a "concentration technique" and is the heavy liquid separation method an example of a concentration technique?

A. "Concentration technique" is you concentrate one type of mineral and remove the other. Panning for gold is a concentration technique using water. Gold sticks to the bottom of the pan as they swirl it, and they're removing the dirt and other materials that are lighter than gold, lower density, as they pour the water out. They keep doing that until they removed everything, and, hopefully, they found some gold flakes. That's, of course, looking for something different but using the same concept.

Q. Based upon the testing you have done on testing Johnson & Johnson's talcs for asbestos, do you agree

with Dr. Reynolds' statement way back in 1974 that a concentration technique, such as the heavy liquid separation method, is mandatory in order to do the most reliable and sensitive analysis to determine if there is amphibole asbestos present in talc?

A. I agree with that statement.

Q. Why?

MS. BROWN: I object to the extent Dr. Longo is now interpreting what the person who wrote this statement back in the 1970s meant. I think it goes beyond any evidence in the document of a testing method and it is well outside his area of expertise, and now he is speculating what this person meant.

MR. BLOCK: Your Honor, I can go to the next question.

THE COURT: Okay.

BY MR. BLOCK:

Q. In terms of the test method, did Dr. Reynolds provide a figure that showed the heavy minerals sinking to the bottom and the talc floating to the top?

A. Yes. That's a test tube; it is a centrifuge tube. It shows, after the spin process, they now have separated out the different density minerals talc at the top, the heavy minerals at the bottom, and he's

going to take that plunger and pull it up and remove the top portion and go through several washes to make sure they have all the heavy minerals at the bottom.

Q. Can you compare -- I guess what you did, you have your tube, and you showed a depiction of how you did the heavy liquid separation method versus what is described in the confidential memo from Dr. Reynolds to Johnson & Johnson in 1974.

A. That is a centrifuge tube. It doesn't have anything in it and that red line shows that instead of using a stopper rubber plug and pull out, we use one of the things that is in that paper tray. We flash freeze the tip in liquid nitrogen, and remove the tip, just the bottom tip of the test tube, and then wash that out instead of using a rubber plug type apparatus.

Q. Dr. Longo, in terms of what Dr. Reynolds did, did he use the heavy liquid separation method and use the centrifuge, as you described you did in your own testing?

A. Yes, sir, it is the same basic method.

Q. Did he find fiber form amphiboles in the ore of Vermont talc and the talc product?

MS. BROWN: Objection, your Honor. We are going well beyond the stated words here, and Dr. Longo

is being asked to interpret this decades old document well outside his area of expertise.

THE COURT: I have it. I have the document. I think we are going to the method as opposed to the findings. So let's move on.

Q. Back to the method, in addition to Dr. Blount publishing on the heavy liquid separation method, did the International Standards Organization in 2014 publish on the test method of the heavy liquid separation method for use in testing talc for asbestos?

A. Yes, they did. They issued this in 2014.

Q. You may be asked about certain ISO methods on cross-examination by Johnson & Johnson, and I just want to make clear: Is ISO, this particular ISO standard 22262-2, is this the ISO method that is specifically specified for testing talc for asbestos?

A. It is. It's the only method I know of that specifically talks about talc and cosmetic talc and how to test it.

Q. Does it say so on this slide this method 22262-2 is the ISO method to use in testing talc for asbestos?

A. Yes, sir, it does.

Q. We can see that in subD right there; can't we?

A. Yes.

Q. Did ISO also in 22262-2 on page 38, as shown in this slide, actually produce a chart that tells you what method to use depending on what type of material you are testing for asbestos?
A. It does.
Q. Does it say that talc, cosmetic, which typically may contain chrysotile, actinolite, and tremolite asbestos is supposed to be tested in accordance with this particular ISO provision 22262-2.
A. Yes, sir, it does.
Q. Does it say what is the optimal analytical procedure used in testing talc for asbestos in the last column?
A. It says to use centrifuge with the heavy liquid separation as described, same concept as described by Dr. Blount.
MS. BROWN: Your Honor, I would object to counsel's characterization of this document as typically found in talc. The title of the column is "typical asbestos type if asbestos is present."
THE COURT: I read the heading. I'm aware. Thank you.
Q. It says here, "For amphibole either centrifugation and heavy liquid" -- withdrawn.
Did you do what ISO 22262-2 specifies as the

optimum analytical procedure for testing talc for asbestos?
A. Yes.
Q. Is it set forth right there on the last column on the right under "Optimum Analytical Procedure"?
A. Yes.
Q. If we look at the specifics of ISO 22262-2 at page 29 and 30, does it tell you how to do the heavy liquid separation when testing talc for amphibole asbestos?
A. Yes, sir. It both tells you how to prepare the sample and then it tells you to go to the 22262-1 the companion methods on this on how to quantify and identify the asbestos amphiboles.
Q. I think that's an important addition. I want to make sure that's understood here.

THE COURT: Let's take a short break.

THE DEPUTY CLERK: All rise.

(Recess.)

(Continued on the next page.)

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THE DEPUTY CLERK: All rise.

THE COURT: Thank you.

WILLIAM E. LONGO, resumed.

DIRECT EXAMINATION (continued)

BY MR. BLOCK:

Q. Dr. Longo, comparing the 22262-2 heavy liquid separation method set forth there that we could see, and if we look at your report on page 10, did you follow that preparation method as set forth in ISO?

A. Yes, sir.

Q. Once you did the heavy liquid preparation method on the talc samples, did you analyze the samples under microscopes?

A. We did.

Q. We are short on time, and you could say a lot about these things, but just give us a brief description of polarized light microscopy and how it works.

A. It uses light and it uses polarizers to get the vibrational wavelengths of light to go in specific direction. By doing that, you could cause the minerals you are looking at to demonstrate different characteristics that allow you to identify it,

everything -- how fast the light can go through the crystal to if you move the crystal under these polarized light filters, you have certain angles it disappears, and you can determine the refractive indices. It is the standard how you analyze it to identify asbestos. The same method has been used for literally over a century.

Q. What is briefly transmission electron microscopy, and how does it compare to PLM, polarized light microscopy in terms of the advantages and disadvantages when you are testing talc for asbestos?

A. The advantages are it allows you to get a much higher sensitivity. It allows you to identify the asbestos fibers according to the rules using microchemistry. It allows you to determine the crystalline structure using the diffraction technique. It doesn't use light. It uses electrons. So that because you are using electrons, you could see much smaller size asbestos fibers than you see in the polarized light microscopy because you are using light. It is a much more sensitive instrument, and it is probably the instrument that should be used for the analysis of asbestos for talc.

Q. Is there a general consensus in the scientific community as set forth in the published methods as to

the three steps that have to be undertaken when doing transmission electron microscopic analysis on a material to determine whether it contains asbestos?

A. Yes, there is.

Q. We're looking at page 12 of your report, and I circled step No. 1. That is step No. 1?

A. It is called morphology, the dimensions of the fiber or bundle of asbestos you are looking at. Step 1 has to have an aspect ratio greater than or equal to 5-to-1. The length of the asbestos structure has to be at least a half a micrometer in length or greater. It has to have substantially parallel sides so that each side of the asbestos structure essentially is almost straight. You could have a little bit of crookedness, but substantially parallel. That is Step 1.

Q. What is Step 2 as shown in your report?

A. Step 2 is once you have made, that you can see and measure that Step 1 is satisfied, you perform mineral chemistry called energy dispersive X-ray analysis to determine the chemistry of that particular asbestos structure. So it gives you the ability to do that. That's Step 2.

Q. What is Step 3 as shown in the slide and in your expert report?

A. Step 3 is to perform what's called selected area electron diffraction or SAED, which gives you information on the crystalline structure of that asbestos structure.

Q. Have you published in the peer-reviewed literature on this generally-accepted three-step TEM method?

A. Yes, sir. The first publication would be in 1995 when we analyzed these Kent Micronite cigarettes from the fifties that used crocidolite and other fibers in the filter.

Q. In doing that analysis that you published on the pier-reviewed literature, did you have to determine which fibrous materials in the filter of Kent cigarettes were asbestos and were not asbestos?

A. Yes, sir.

Q. It's right here on the image we could see that you looked at the morphology by transmission electron microscopy you did the chemistry analysis called EDXA, and you did the third step SAED, and you said, "According to EPA protocols," and you cited EPA AHERA. Is that correct?

A. That's correct.

Q. Is EPA AHERA one of the generally-accepted methods you applied in this case in determining

whether there was asbestos in Johnson & Johnson's talcs?

A. Yes.

Q. To look at another example, was there a conference put on by Dr. Irving Selikoff at Mount Sinai in 1991 which was called "The Third Wave of Asbestos Disease"?

A. Yes.

Q. Am I holding up the book in my hand right now?

A. You are.

Q. Did the contributors to this conference and this publication of this book include many of the leaders in the sciences of asbestos, including Dr. Irving Selikoff, Dr. Philip Landrigan, head of occupational medicine at Mount Sinai?

A. Yes.

Q. Did you and Dr. Victor Roggli have an article published in this third wave book?

A. Yes, sir.

Q. In that article, did you perform the three-step TEM analysis that you used in testing Johnson & Johnson's talc for the presence of asbestos?

A. Yes, sir, we did.

Q. If we look at the slide there, can we see the three steps: The morphology by TEM, looking at the

chemistry with the EDS, which is also called EDXA, and looking at the crystalline structure, which is SAED? Is that right?

A. Yes, sir.

Q. Without going through the details of the study, and the Court has this at tab 10 A, did you determine in this study -- did you make findings of tremolite asbestos fibers based upon the same three-step TEM method that you are using in this case?

A. Yes, we did.

Q. Similar to this case, was one of the tests you did a substance where when you went to test it, you didn't know if it had asbestos or not, you had to determine whether it had asbestos and then what types of asbestos and other minerals?

A. Correct, for both the lung tissue and plaster sample.

Q. Now, have you also published in the peer-reviewed literature using these generally-accepted methods for transmission electron microscopy and polarized light microscopy that you've used in this case on minerals that contain asbestos as a contaminant as opposed to the product being designed to contain asbestos?

A. Yes. Instead of calling it a contaminant, an

accessory mineral comes along with the nonasbestos portion mineral. In this case, it is Libby, Montana vermiculite.

Q. The article is here, if the Court wishes to see more details, but in short, did you identify amphibole asbestos and, in particular, fibrous tremolite and fibrous actinolite, and other amphibole asbestos in this mineral that's mined from the ground called vermiculite?

A. Yes, and also richerite and winchite, which are found in the Libby Montana vermiculite mine.

Q. As you did in this case, is one of the generally-accepted methods you used the EPA AHERA method?

A. Correct, for the TEM analysis as well as the bulk analysis.

Q. And similar to this case, were you publishing here in the peer-reviewed literature on the analysis of a mineral where you found -- it says "often less than 0.1 percent asbestos"?

A. Yes, sir.

Q. And did you publish in the peer-reviewed literature, even though the material contained less than 0.1 percent asbestos, that you determined that it says here, "significant exposures can still occur that

can be in excess of current regulatory exposure limits"?

A. Yes. Based on the actual studies we did in this paper.

Q. Now, in terms of the three steps, this three-step TEM process, is this really the general consensus that can be found in many methods including ASTM 5755, the method where you led the authorship of that?

A. Yes. When we say morphology, the same counting rules, the one aspect ratio or greater, and so on.

Q. I want to talk to you about the development of the EPA AHERA method and the relevance of that in this case. Okay?

A. Yes, sir.

Q. When the EPA AHERA method was developed and promulgated in 1987, did the EPA convene a committee of leading microscopists from private and federal laboratories?

A. They did.

Q. As a result of the convening of that committee, did the EPA choose a test method to be used for EPA AHERA?

A. They did.

Q. Is that the test method that's used when

asbestos is abated from schools and buildings to assure that once you do the analysis, it is safe for children and building occupants to go back in the building?

A. Yes, sir.

Q. And it says here the EPA chose to require TEM analysis for four reasons, and it lists them there. What is your understanding of I guess the development of the AHERA method and what is stated here in the preamble of the regulation?

A. The development was done through essentially taking what everybody calls the Yamate method and expanded that into what essentially became the AHERA method. It follows Yamate with some modifications.

Q. Just to be clear, and you may be asked on cross-examination about the Yamate method, was that developed earlier in time in 1984?

A. Essentially it was initially developed in 1981 and published as a draft method in 1984. It was never -- it's been only a draft method for EPA and EPA never sent it out as an official method.

Q. In terms of the Yamate method, when it came time in 1987 for the EPA to formally adopt a method for TEM testing materials for asbestos, did they adopt EPA AHERA and the method set forth there in 1987?

A. Yes, sir, they did.
Q. Is that still the EPA AHERA method that exists today in 2019?
A. Yes.
Q. Now, we looked at this earlier, and I want to go through the general consensus on Step 1, in looking at the morphology, the shape of the structure and the EPA AHERA is the 5-to-1 aspect ratio and the other details you talked about earlier. Correct?
A. Yes, that's pretty much the same counting rules for all the standard TEM methods, the American Society of Testing Materials, International Standard Organization, and EPA. They all use the counting rules to determine the morphology.
Q. Does the preamble to the EPA AHERA regulations discuss why the EPA decided to have a 5-to-1 aspect ratio requirement for determining that a material is asbestos assuming the other steps of the method are satisfied?
A. Yes, sir. They have published why they picked 5-to-1.
Q. And here it says:
"It is consistent with the panel of microscopists' observations that asbestos structures have aspect ratios equal to and greater than 5-to-1,

whereas the majority of nonasbestos structures minerals and particles -- for example, Gypsum -- have aspect ratios of less than 5-to-1."

Do you see that?

A. I do.

Q. Is that consistent with your opinion and the general scientific consensus in the scientific community?

A. Yes, it is.

Q. If we go to the next slide, which is tab 22, Dr. James R. Millete, did he publish in the peer-reviewed literature about the importance of the 5-to-1 aspect ratio?

A. Yes, sir, he did.

Q. What does he say and what, if at all, do you rely upon in terms of your expert opinions in this case?

A. Well, he states from earlier work by Campbell in the Bureau of Mines, where they state that the best indicator aspect ratio discriminator for asbestos versus nonasbestos fibers is this 5-to-1 aspect ratio used in these TEM methods. Again, we're talking about transmission electron microscopy for all these different methods that use that same definition for an asbestos fiber for the morphology and aspect ratio.

Q. Going back to the previous slide, does it indicate some commentators, some people who participated in the EPA AHERA regulation process suggested that the aspect ratio should really be 10-to-1?
A. Yes. As it states right there.
Q. Was that rejected by the EPA for the reasons set forth right there in the preamble the Court could find at tab 20 of the notebook?
A. Yes, it was.
Q. So in terms of the general consensus of using the 5-to-1 aspect ratio, substantially parallel sizes of at least 0.5 microns in length, do we see that in ASTM 5755 as well?
A. Yes. This is the standard method for most all your transmission electron microscopy protocols.
Q. Looking at ISO 22262-1 and -2, I want to ask you about this, Dr. Longo. It says, "Fiber elongated particle which has parallel or step sides."
Do you see that?
A. Yes, sir.
Q. What does "step sides" mean?
A. If you go down the fiber there may be a step down showing where another fiber has broken and you have a continuation. So it is like a step down, one

step down. Sometimes you could have two steps down.
Q. It says:
"Note: For the purpose of this part of ISO 22262-2, a fiber is defined to have an aspect ratio greater than or equal to 3-to-1."
Do you see that?
A. Yes, sir.
Q. Now, why did you apply the 5-to-1 aspect ratio requirement in applying ISO 22262 in testing Johnson & Johnson's talc if it has a note here saying you could have 3-to-1?
A. We wanted to stick with the standard counting protocols in all these different TEM methods including the ISO 13794, if I recall correctly. That also has greater than or equal to 5-to-1 aspect ratio as well as particle sides.
Q. Is the 5-to-1 aspect ratio you used more restrictive?
A. Than 3-to-1, yes, sir.
Q. In terms of the reference to ISO 13794, does it reference the 5-to-1 aspect ratio that we have been discussing today?
A. Yes, it does.
Q. Is that another reason why you used it, because it is stated and adopted and incorporated there, and

it is also more conservative and consistent with the scientific consensus?

A. Correct.

Q. Let's go through some examples of your testing in this case.

MR. BLOCK: And here, your Honor, we are looking at a 1978 Johnson's Baby Powder sample.

Q. And let's go through Step 1.

What are we looking at here, and does it satisfy Step 1?

THE COURT: Why don't you identify where this is located, please.

MR. BLOCK: This is located in tab 9 A of your notebook. It is also located in Dr. Longo's test book binder, which is Exhibit 2, and we have the Bates numbered page on there for your reference.

Q. Dr. Longo, what are we looking at here in terms of does it satisfy Step 1 of the generally recognized TEM method?

A. This is an anthophyllite solid solution series asbestos structure. If we go through the morphology requirement, this structure is 35.4 micrometers long. Most likely longer, but this is the edge of the grid bar. So you can't see if it is laying on top. It has a width of 1.8 micrometers. So the aspect ratio would

be greater than 5-to-1, and it has substantially parallel sides. So it meets the definition of the morphology for a regulated asbestos fiber, if we go and do steps 2 and 3. But it has a morphology for a potentially regulated asbestos fiber.

Q. And you actually calculated the aspect ratio, and it is 19.7-to-1?

A. Correct.

Q. These are in the book for the Court at tab 9 A, and we'll skip past the next two.

Do all of the asbestos structures that you identified in Johnson & Johnson's talc meet the morphology requirement of the 5-to-1 aspect ratio and the other requirements we have talked about today?

A. Five-to-one aspect ratio or greater.

Q. Good. If we go to your test book, and we put an excerpt at tab 9 A for the Court, do we see count sheets for all of the work of your lab?

A. Yes.

Q. Let me stop here. This says the analyst is Anthony Keaton who did the TEM analysis. Can you tell the Court what training your analysts undergo before they can perform TEM or PLM analyses at MAS and their experience levels?

A. All our PLM analysts at one point in their

careers went to Chicago and studied at the McCrone Institute to learn to do polarized light microscopy. They come back from that training course and start off slowly, simple samples, samples -- someone coming behind them who's more experienced until they build up, until you can feel comfortable with them, that they are routinely doing the analysis correctly.

Our two primary PLM analysts right now have almost 30 years of experience each. Combined, 60 years of experience. They still go through updates and QC.

For TEM analysis we typically may send them to a course in McCrone or MVA, if they are brand new; and then it is almost a six-month period before they are actually allowed to do samples on their own without routinely coming right behind them.

THE COURT: What's the general education when they come to you and get this training?

THE WITNESS: Generally they have a Bachelor's degree in either biological science. Anthony Keaton happens to be a geologist and mineralogist. Our PLM analysts are geologists. So you don't have to have a higher education, but they do; but they have to be able to understand the physics of it. Usually this takes a four-year degree in some sort of science so

they can understand what they are doing.

Q. Do you closely supervise the work of your analysts including --

THE COURT: You asked about him personally or people in his lab do it?

Q. How do you and/or others in your lab supervise your analysts and particularly to the point where your name goes on a test book that we have marked as Exhibit 2 showing all the testing done?

A. We have management levels. We have the manager of the PLM and the TEM who has 15 years of experience. And what I do is come in and check and look at and review in QC to tell what protocols you use. I don't do the analysis on a daily basis but I will come in and say: "Can I look at that? Let me see. Show me that's really this." That's sort of my job now.

Q. We've talked about the morphology requirements, Step 1. Can the Court see on the count sheets that you then have to also do steps 2 and 3. You have SAED and EDS. Before you could say it's asbestos you have to do the steps. Right?

A. Yes, sir.

Q. Let's take a look at Step 2.

Step 2 you described generally earlier but is this an example of a generally-accepted method EPA

AHERA requiring the analysis that allows you to determine the chemistry of the mineral that's being looked at?

A. That is correct.

Q. If we go to the next slide, on one side we have -- is this called an EDXA spectrum?

A. Yes, EDXA spectra or spectrum. Typically it's spectra.

Q. Does looking at the spectrum show you the ratios and levels of different elements that are shown in the mineral?

A. Yes, it does that.

Q. Looking at the EPA AHERA requirement, it says here, "Compare spectrum profiles with profiles obtained from asbestos standards. The closest match identifies and categorizes the structure."

Is that what Material Analytical Services did in this case in testing Johnson & Johnson's talc?

A. Yes. These profiles would be for anthophyllite, typically the magnesium and silicon peak here. And then you will have iron, depending on the chemistry of the mine the anthophyllite is in. The more iron tends to have higher iron in the anthophyllite.

Then we take this and compare it to the standards.

Q. One of the arguments Johnson & Johnson has made in this case is that MAS should have included the numerical values of each element below the EDXA spectrum. Is that something required in the AHERA method?

A. It is not. It is a visual comparison to the asbestos standards.

Q. Is that what MAS does?

A. Yes.

Q. Does MAS follow the AHERA method that's stated there?

A. Yes, we do.

Q. Looking more at AHERA at tab 21, page 896, for the Court it talks again about the EDXA spectra, and it talks about a semiquantitative comparison with these reference spectra. Is that what MAS does?

A. Yes. It is a visual comparison of these unique spectras in which you use a Step 2 on the way to identify it as either asbestos or not asbestos.

Q. In terms of the word semiquantitative comparison with the EDXA spectra of the mineral that's identified in Johnson & Johnson's talc versus the spectra of an asbestos standard that MAS has in its lab, how is that semiquantitative? Is there a semiquantitative? Do you agree with that characterization?

A. It is. You are visually looking at the ratio of two elements for anthophyllite magnesium and silicon. It is about a 5-to-10 ratio. It can be a little higher or a little lower. That's what the standards show. You are only required to do a visual assessment.

Q. Now, in ASTM 5755, the method you talked about and gained the consensus of all those scientists, what does that say about what you need to have in terms of that EDXA spectra?

A. It says to "record at least one X-ray spectrum EDXA for each type of asbestos observed per sample. Attach the printouts at the back of the count sheet."

Q. I'm holding Exhibit 2 MAS's test notebook and I'm turning, for the record, to Longo MDL 00878. Is that exactly what MAS did, attach the X-ray spectrum to the back of the count sheet when MAS analyzed Johnson & Johnson's talc for asbestos?

A. Yes, we did.

Q. And does ASTM 5755 or EPA AHERA say you should even give the numerical quantification of each element?

A. No.

Q. So when defense counsel cross-examines you on why this area below is blank, which could have the

quantitative results for the anthophyllite, what's your response?

A. It's not required in these TEM analysis. The EPA AHERA analysis, it's not required.

Q. And the ASTM?

A. It is not required for the ASTM and the ISO method.

Q. In terms of your last statement, it is not required or specified in the ISO method, we are looking here at 22262-1. Correct?

A. Yes.

Q. And those procedures are incorporated in 22262, which is specified for testing talc for asbestos. Is that correct?

A. That is correct.

Q. And here it says for anthophyllite, this is the example we are looking at, classify a fiber as anthophyllite if -- and it talks about magnesium and silica peaks are comparable in ratio to those of reference anthophyllite, and in ISO does it talk about setting forth the numerical values or looking at the peaks and looking at whether the ratios of different elements are comparable?

A. It is a visual comparison to the standards.

Q. Now, let's go to Step 3 in this example we are

looking at. We have what EPA AHERA says about -- I'll withdraw the question.

Does the EPA AHERA method require SAED as Step 3?

A. Yes.

Q. We're looking at tab 21. Does EPA AHERA say how you are supposed to do Step 3 of the TEM analysis?

A. After acquiring the -- I'll stick with SAED pattern, you form a visual examination to determine it belongs to one of the following classifications. Your visual examination, you say it belongs to chrysotile, which is serpentine; amphibole, what we are dealing with amphibole, the asbestos amphibole, and non asbestos, by visually examination of the patterns because of their uniqueness.

Q. And on cross-examination I'm sure Johnson & Johnson is going to ask you why didn't you do zone access, something called zone axis, and is that required by the EPA AHERA method?

A. In some cases, some of the analysts did perform zone axis. Our mineralogists will tend to do it from time to time, but it is not required. It is not a required step in the EPA AHERA method other than a typical what we'll call a d-spacing diffraction pattern that allows you to say this is an amphibole.

Q. And did MAS follow the EPA AHERA method in the way it performed the SAED Step 3 of the TEM analysis in testing Johnson & Johnson's talc for asbestos?
A. Yes.
Q. If we look further at EPA AHERA on page 899 of tab 21, does the method say that what a lab is supposed to do, "verify identification of the pattern by measurement or comparison of the pattern with patterns collected from standards under the same conditions"?
A. Yes.
Q. Did MAS follow that protocol?
A. Yes, they did.
Q. And in terms of ISO 22262-1, do they speak to how to distinguish anthophyllite asbestos from talc?
A. From fibrous talc.
Q. Why is it important to do this SAED analysis to make sure you properly distinguish between fibrous talc and anthophyllite asbestos?
A. Because the EDXA pattern or the chemistry for anthophyllite can be identical to the chemistry for fibrous talc. So you have to do a third step. The third step distinguishes between the fibrous talc and anthophyllite asbestos.
Q. The ISO standard says here anthophyllite

asbestos, and I'm pointing to it, the middle of the page, on the other hand, produces assorted spots appearing and disappearing along layer lines as the fiber is tilted using the goniometer, do you see that?

A. Yes, sir.

Q. What is a goniometer?

A. It is the ability to tilt your specimen in the TEM. You can rotate it and go from zero to some angle.

Q. Does the ISO test method say here use zone axis?

A. No.

Q. Does it say use dual zone axis?

A. No.

Q. Does MAS follow the ISO standard as one of the means of distinguishing anthophyllite asbestos from fibrous talc?

A. Yes, we did.

Q. Let's keep these words in mind:

"Anthophyllite asbestos produces assorted spots appearing and disappearing along layer lines as the fiber is tilted using the goniometer."

If we go to the next slide, is this Step 3 one of the examples that we have been looking at in terms of anthophyllite asbestos in Johnson & Johnson's talc?

A. Yes. These are two different angle diffraction

patterns of the same anthophyllite structure. We're calling it anthophyllite asbestos because we have gone through steps 1, 2 and 3.

On the left-hand side we have the row of patterns, and what you are looking at there from the dots -- going in this direction, these are the scatter or diffraction of the electrons for the rows of atoms that go and scatters between the atoms. It is called diffraction from here to here. From here to here would be the next layer of crystal. This is at zero tilt. When the goniometer is tilted, you see that one, this layer of spots is now missing and now has appeared up here. This layer has become smaller, these spots, and we have an additional layer. What we are doing, we just changed the electron beam direction on this particular area of the crystal.

Fibrous talc can't do that, and that's how you make the distinction between the two.

Q. You just demonstrated the way in which MAS distinguishes anthophyllite asbestos from fibrous talc in analyzing Johnson & Johnson's talc?

A. Correct.

Q. Now, in terms of ASTM 5755, does it say what you are supposed to do is record a typical electron diffraction pattern and attach it to the back of a

count sheet?
A. Yes, sir.
Q. If we go to your book PSC Longo 2, and I go to page 879 Longo MDL, and Longo MDL 880, is that exactly what MAS did, did they follow the ASTM 5755 protocol on that as well?
A. Yes.
Q. You mentioned "fibrous talc." If we look at the ISO method, it talks about anthophyllite asbestos and talc having similar chemistry by EDXA, but then it says:

"ED, electron diffraction of talc produces a pseudo hexagonal pattern that does not change as the fiber is tilted using the goniometer."

Is that what it says?
A. Yes.
Q. What is being shown in this slide, and can you compare it with what ISO is saying about how you distinguish fibrous talc from anthophyllite asbestos?
A. Here is the fibrous talc structure. It meets the definition of asbestos. It has all the right geometry. Greater than or equal to 5-micrometers -- I mean greater than or equal to 5-to-1 aspect ratio, longer than .5 micrometers particle size; and when you do the selected area electron diffraction, when they

say pseudo hexagonal, you can see the hexagonal pattern. If you tilt the goniometer, that pattern doesn't change.

Q. Is that pseudo hexagonal pattern, which is characteristic of fibrous talcs circled in red on the slide?

A. Yes, sir. Finishing this third step as per the ISO protocol, you can now call what we are looking at a regulated asbestos structure of the anthophyllite solid solution series.

Q. Now, going back to this issue of zone access SAED. ISO says here in 22262-1, analysis of laboratory samples seldom requires zone axis measurements.

Do you see that?

A. Yes, sir.

Q. Is there anything in this ISO standard that says specifically that you should use zone axis or dual zone axis for testing talc for asbestos?

A. No.

Q. And it says here:

"Seldom the laboratory samples in general seldom requires zone axis measurements."

What is your understanding of that based upon your expertise and experience?

A. That for the types of asbestos we are looking at, beside the anthophyllite, which you should tilt for the two diffraction patterns, either the tremolite series or the anthophyllite series, is fairly straightforward, you are not dealing with unknowns.

Q. Do the three steps that you have outlined in the ISO method, in the EPA AHERA method, in the ASTM 5755 method, and following those three steps in the method allow you to have reliably identified asbestos in Johnson & Johnson's talc?

A. Yes, sir, it has.

Q. Looking at -- does Johnson & Johnson have its own TEM method for testing asbestos in talc?

A. Yes, they call it the T.M. 7024.

Q. If we look at Johnson & Johnson's TEM method that they use for testing talc for asbestos, did they require any zone axis SAED?

A. No. They say measurement of amphibole SAED patterns. You are measuring the D spacing, which we do.

Q. If we go down to section 13.5 of Johnson & Johnson's own TEM method that they use outside of court, it says:

"If it is consistent -- if the SAED pattern is consistent with an amphibole SAED pattern, then it is

examined by EDXRA to confirm the identification or to identify the type of amphibole."

Do you see that?

A. Yes.

Q. Is that consistent with what MAS did in order to identify amphibole asbestos in Johnson & Johnson's talc?

A. It is.

Q. And it says here this is Johnson & Johnson's test for asbestiform minerals. Do you see that?

A. Yes, sir.

Q. Are asbestiform minerals of the tremolite type, anthophyllite type, and actinolite type asbestos?

A. Yes, it is.

Q. If we put all the steps together, the morphology, the EDXA and the SAED, are your findings of anthophyllite asbestos in Johnson & Johnson's talc set forth in your report and the testing notebook which is Exhibit 2?

A. Yes, sir.

Q. Let's talk about another sample tremolite asbestos. Did you find another type of asbestos called tremolite asbestos by TEM in some of the Johnson & Johnson's talc products?

A. Yes.

Q. Was the morphology requirement meant for all that asbestos you found of the tremolite type in Johnson & Johnson's talc?
A. It was.
Q. Could we see the imagery that shows that?
A. Yes. This would be a step down structure as described in the ISO method. I just wanted to show what one would look like.
Q. It looks like there are three different fibers, three different structures that are poking out of the top of that. What is that?
A. Essentially, we have a bundle there that has different amounts of individual fibers in it. That's a tremolite asbestos structure.
Q. And in terms of the documentation of all this testing, does it show where the asbestos structure was found in the TEM grid, for example, in A-2, that it was found in A-2?
A. Yes. That gives you a road map, if you want to go back and have somebody say, I would like to go look at that asbestos fiber you saw. You can easily go to the grid box, and it will tell you what square inside the sample holder that you found that structure.
Q. And, quickly, how small are these TEM grids and how much talc is typically tested in a TEM analysis?

A. You can see a little scale up there. The overall dimension of the TEM grid is 3 millimeters in diameter. Inside that TEM grid you have what looks like a miniature screen with the holes. That has been edged. Each one of those grid openings is 100 micrometers by 100 micrometers. The amount of material that goes onto a grid on the filter in this case is 21 milligrams of sample that is distributed throughout. So the amount on an individual grid opening is very small.

Q. And did you follow all the steps that we talked about earlier, the three steps of the generally-accepted TEM methods in identifying tremolite asbestos in Johnson & Johnson's talc products?

A. Yes. In this case we have an element, calcium, that distinguishes it as tremolite chemistry based on the ratios of the magnesium, silicon and calcium.

Q. In terms of not having the quantity of each element below the EDXA spectra, I want to ask you about testing done by OSHA in February of 2019, and how did OSHA determine there was tremolite asbestos in a talc product on the market called Claires?

A. They used morphology in EDXA only to not perform SAED, and this would be OSHA's analysis they supplied

to the FDA.
Q. In terms of how OSHA did it, it says they have the EDXA spectrum for tremolite asbestos, and do they set forth the quantification of the elements characterizing tremolite as Johnson & Johnson is arguing you should have done?
A. No, they didn't perform that. Nor did they perform SAED.
Q. In terms of following all three steps, the TEM analysis to find tremolite asbestos in Johnson & Johnson's talc, did you do that?
A. Yes.
Q. Now, I want to pause here for a moment. Johnson & Johnson in their cross-examination might say: Dr. Longo, what you are identifying is non-asbestos. Does EPA AHERA have a rule and a standard for what non-asbestos is?
A. Yes, it does. It doesn't meet one of these criteria, the morphology, the EDXA, the chemistry or the electron diffraction pattern.
Q. So if it doesn't meet one of those three steps that we have been through, set forth in EPA AHERA, is it non-asbestos if it doesn't meet one of the three steps?
A. You have to call it non-asbestos. You can't

have an asbestos structure that is too thick for the electron beam to go through and you don't get the diffraction pattern because the electron beam has to be able to penetrate through the fiber to cause the diffraction or scattering. What EPA says if you don't get an ED pattern, you don't count it as asbestos.

Q. Let's say you have a particle of tremolite that you could identify as tremolite based on the chemistry, the EDXA. You can identify it as tremolite based on the crystalline structure. But let's say the aspect ratio is only 4-to-1 or 3-to-1. Under the EPA AHERA, would that be non-asbestos because it doesn't meet the morphology ratio?

A. I would not count that as asbestos.

Q. Would you refer to that as a tremolite cleavage fragment?

A. We may but we will not put it in the count sheet as regulated asbestos.

Q. So EPA AHERA says what's non-asbestos, and is it your opinion to a reasonable degree of scientific certainty, based upon the generally-accepted methods that MAS followed, that all of the asbestos identified by MAS in Johnson & Johnson's talc satisfied all three steps of EPA AHERA method and the other generally-accepted test protocols that we discussed?

A. Yes.
Q. Would any of the anthophyllite asbestos or tremolite asbestos or actinolite asbestos that you found in Johnson & Johnson's talc qualify as non-asbestos under the EPA AHERA standard?
A. No.
Q. We talked about these methods. Let me ask you quickly about Johnson & Johnson's own method.
Does Johnson & Johnson's own TEM method specify the same three steps for TEM that you have discussed with the Court?
A. Yes.
Q. Did you in fact follow a more restrictive standard?
A. Yes, we did.
Q. In terms of the morphology whereas Johnson & Johnson in their TEM method outside of court says you can count as asbestos if it is greater than 3-to-1, and did MAS apply a more restrictive standard?
A. Yes. The counting criteria we use from EPA and others is greater than or equal to 5-to-1.
Q. Johnson & Johnson may say, Dr. Longo, there are some samples where you only found one asbestos structure. Have you been asked about that?
A. A number of times.

Q. And in Johnson & Johnson's own method, does it say that this three-step TEM method is capable of detecting a single fiber in the standard?
A. Yes, it does.
Q. In fact, the ISO method that is specified for testing talc for asbestos, does that state that a finding of one fiber of asbestos or one fiber bundle of asbestos is sufficient to determine the sample contains asbestos?
A. Yes.
Q. Do we see that there on page 7 of ISO 22262-2?
A. Yes, it says it is the limit of quantification which is either one fiber or one bundle.
Q. Is that the generally-accepted scientific standard?
A. It is the generally-accepted scientific standard for these types of analysis where you have process blanks and you can understand that you do not have background or cross-contamination in the laboratory.
Q. Does MAS employ those scientific protocols to assure that the asbestos found in Johnson & Johnson's talc came from the talc and not from contamination?
A. Yes, it does.
Q. Dr. Longo, are there types of asbestos that were used in general commerce where a company would buy

bags of commercial asbestos and incorporate it into the products?

A. Yes.

Q. Was chrysotile the most common form of commercial asbestos used historically in the United States?

A. Yes. 95 percent of all asbestos products contain chrysotile.

Q. Were there two commercial grade forms of amphibole asbestos used in the United States called amosite and crocidolite?

A. Yes. That made up the remaining 5 percent. Amosite was 4.6 percent used in this country and crocidolite was .4 percent.

Q. And the forms of asbestos that you found in Johnson & Johnson's talc, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos, are those commercial forms of amphibole asbestos or noncommercial forms of amphibole asbestos?

A. They are noncommercial forms. Tremolite and actinolite, I'm not aware of them using it in a product; and anthophyllite mined in Finland, was used in one specialty product that was a plastic pipe for high pressure chemical processes that you need really good acid resistance, but that's it.

Q. Is there some general definitions of asbestos that are found in certain test methods including ASTM 5755 that we discussed that talk about asbestos or asbestiform, meaning or having part of the definition being high tensile strength and flexibility of the mineral?

A. Correct.

Q. As to anthophyllite asbestos, tremolite asbestos and actinolite asbestos, do those types of asbestos have high tensile strength and flexibility?

A. No. They are almost classified as brittle. They don't have flexibility. Therefore, you cannot weave them. It is not a commercial type of asbestos. Those definitions that are in every TEM method, PLM method is a general definition for asbestos-added products. It is not intended for all asbestos. The main reason we know that -- I put the definition in ours in the negotiation -- is there is no test for it at the microscopic level. Therefore, it has to be a general definition.

Q. So in terms of a test method, even though a definition might say high tensile strength and flexibility, is there any way of even testing that with a microscopic asbestos structure?

A. No, it is impossible. You have to understand

they don't even define high tensile strength.
Q. If those were requirements, if it had to have high tensile strength and flexibility in order to be asbestos, even though there are no test methods for that, would that essentially exclude known types of asbestos, including anthophyllite asbestos, tremolite asbestos, and actinolite asbestos that weren't used for commercial purposes because they don't have those attributes?
A. It would. There are test methods for tensile strength, but the only way you can do that is go to the mine and cut a very big piece of the asbestos bundle, tape it to paper, and put it in what's known as an Instron to test tensile strength.
Q. But is it part of generally-accepted TEM and PLM methods?
A. No, it is impossible using those analyses, using those two analytical tools.
Q. Let me go through this next section quickly. I'm really trying to move along.
THE COURT: Just so you know, you will end at noon. We talked about 2 1/2 hours. I know we took a break. It will still give you more than 2 1/2 hours. Look at the clock. You have 20 minutes.
MR. BLOCK: Thank you, your Honor.

Q. Under the established generally-accepted TEM methods, if it is a fiber, a bundle, a cluster or matrices, as long as the three steps of the TEM are met, is it asbestos?
A. Yes.
Q. Okay. There has been discussions in the briefing about identifying something as a fiber versus a bundle. Under the standard TEM methods, including EPA AHERA, are they both asbestos?
A. They are. One is not more asbestos than the other. It is all regulated asbestos if it is a fiber bundle or what have you.
Q. Is the same true under the other generally-accepted methods including ASTM 5755, as we can see on the screen right here?
A. Yes.
Q. They are asbestos structures if the test method is met regardless of whether it is called a fiber or a bundle or a cluster or a matrices. Is that correct?
A. That is correct.
Q. Johnson & Johnson has raised this co-efficient of variation test which is attached to the Court's tab 52. I want you to briefly -- what did this show about the ability of TEM analysts at MAS to accurately identify the total structures of asbestos contained in

a talc sample?
A. This test was designed to measure the error rate of the four TEM analysts counting and looking at the same grid openings and determining how many asbestos structures that they are seeing and identifying compared to the next analyst and the next analyst and the next analyst, and this all was done blind.
Q. What were the results of the comparison and those analysts being able to identify the total structures?
A. That the co-efficient of variation for the four analysts showed there was an error rate of plus or minus 6 percent.
Q. To reverse that, it was over 90 percent, what would you say consistency?
A. Yes.
Q. Now, Johnson & Johnson put this chart in their brief, and it depicts that in this test the four analysts unanimously agreed on whether something was a fiber or a bundle on only one occasion. Do you see that?
A. Yes. Just for the tremolite, not for the anthophyllite.
Q. Going to the next slide, did you calculate the percentage of agreement among the analysts in

determining whether something was a fiber or a bundle?
A. Yes. They had a 72 percent agreement. The way this is measured is not -- does everybody get it right because there is no right. This is the analyst looking at an unknown structure in making the decision if it is a fiber or a bundle.

So if three analysts say it is a bundle and one says it is a fiber, there is a 75 percent agreement. It would be the same -- and I know this didn't happen, but you have to think about suppose 100 TEM analysts looked at a structure and 95 of them said it was a bundle, and five said it was only a fiber, that doesn't make that 95 wrong. They would say that's 95 percent agreement. That's how this is evaluated for reproducibility.

Q. So there was 72.2 percent agreement on whether the tremolite asbestos structure was a fiber versus a bundle. Is that what it shows here?
A. Yes.
Q. And if we go to anthophyllite, Johnson & Johnson did not put a chart on their brief about anthophyllite asbestos, comparing identification of fibers versus bundles; and does that show an 83.7 percent agreement?
A. 83.7 agreement if the structures are either a bundle or a fiber.

Q. Did a laboratory called J-3 Resources conduct a study to see if it could verify the presence of asbestos structures detected in certain J&J talc samples tested in the MDL?
A. Yes.
Q. And if we go to this slide here, is this a summary of the analysis of J-3 as compared looking at MAS' samples?
A. Yes. J-3 took our TEM grid and went and reanalyzed the asbestos structures that we had already analyzed and said was asbestos and verified what his findings were independently of our finding for the exact same asbestos structures.
Q. It says here J-3 verified the asbestos. 20 out of the 22 asbestos structures identified by MAS, and that's 91 percent. Correct?
A. Yes.
Q. And the two disagreements were that J-3 concluded that two of them did not have sufficiently particle sides. Right?
A. That was his opinion.
Q. And did the J-3 lab follow the same three step TEM method?
A. Yes.
Q. It says out of the 20 agreed-upon asbestos

structures, there was a high level of agreement between MAS and J-3 about whether the asbestos structure was a fiber or a bundle. Is that correct?

A. Correct.

Q. Just to be clear, if it is -- I'll withdraw the question.

Under the three-step TEM that's generally-accepted, does it make a difference whether it is a fiber or bundle in terms of whether it is asbestos?

A. It does not.

Q. Did J-3 Resources conduct their own testing of some Johnson & Johnson talc powder Shower To Shower samples?

A. Yes, MDL samples.

Q. Did they also apply ISO 22262, the protocol you described to the Court today?

A. Yes.

Q. Did they find anthophyllite asbestos in 11 out of the 16 samples?

A. Yes, they did.

Q. Did MAS conduct a test to see if it could verify the presence of asbestos in those 11 samples that this separate lab J-3 Resources found anthophyllite asbestos in?

A. Yes. We verified their analysis.
Q. MAS found nine out of 11 samples where J-3 found anthophyllite asbestos in fact did contain anthophyllite asbestos. Is that correct?
A. Yes.
Q. What about the other two?
A. One, the grid was damaged. So we could not -- the asbestos structure was gone. These carbon films on these grids are very sensitive to movement.
The second one we couldn't locate the asbestos structure on the grid opening.
Q. In terms of the TEM test results at MAS, did MAS detect amphibole asbestos in 42 of the 71 Johnson & Johnson talc samples?
A. By transmission electron microscopy.
Q. Using the heavy liquid separation prep method?
A. Yes.
Q. What about the samples where amphibole asbestos was not detected; can you assure us there is no asbestos in the containers or what do the results tell us?
A. The results say nondetect. We can't say it is there. We can't say it is not there. If it happens to be there, it would be below our analytical sensitivity.

Q. Which is what?
A. The approximately 8 to 9,000 fibers/bundles per gram asbestos structures per gram of talc.
Q. Did MAS conduct an analysis using generally-accepted methodologies to calculate the structures, the number of structures of asbestos contained per gram of the Johnson & Johnson's talc in which it found asbestos?
A. Yes.
Q. Is this an example where MAS found seven structures of asbestos, looked at the amount that was analyzed, and is this a standard calculation where you then state what it is per gram?
A. Per gram per cubic centimeter of air, per centimeter squared of surface area, per the number of fibers or bundles in a lung burden analysis. It is all the same type of math. They all do the same.
Q. Let's talk about the polarized light microscopy analysis that MAS did. This is the smaller microscope we looked at earlier. Correct?
A. Correct.
Q. It talks about MAS using a 1.605 refractive index fluid. Is that what ISO says to use?
A. For suspected tremolite or anthophyllite.
Q. If we look at an example, this 1978 Johnson's

Baby Powder sample, do we see here an MAS data sheet next to the ISO standard?

A. Correct.

Q. Did MAS look at the morphology and all the other characteristics signs of elongation, extinction characteristics; did they follow ISO in determining whether there was amphibole asbestos in Johnson & Johnson's talc?

A. Yes.

Q. Is that shown by comparing the ISO standard to MAS' data sheets?

A. We followed how you identify it in polarized light microscopy as stated by ISO.

Q. In terms of how you determine under polarized light microscopy, whether what you are seeing is asbestos, does ISO give guidelines on that?

A. Yes, sir.

Q. And if you could, just explain how you can state reliably to this Court based upon generally-accepted methods that the amphibole asbestos that you found in Johnson & Johnson's talc by polarized light microscopy is asbestos?

A. We identified it using the criteria on ISO for the crystalline structure and how you identify it. Then we go to, is it asbestos? Does it meet the

counting rules? In this case the individual fibers in the bundles have to be in the range of 20-to-1 or greater.

In the TEM method, the bundles are measured -- you don't try to measure the individual fibers. You can't. It is not allowed in the method because nobody can agree on it. Here you can see the individual fibers. You don't have to count them, but you give a length-to-width aspect ratio.

Then it says any of the following parallel fibers occurring in bundles. These are bundles that we are seeing, and you can see in the example we will have parallel fibers.

So it meets the criteria for asbestos in the ISO method.

Q. I just want to make clear. The notion of looking at whether it is a bundle is something that's part of the PLM analysis. Is that correct?

A. Yes.

Q. Does the PLM analysis also say it can be fibers in the form of thin needles? Does it have to be a bundle?

A. No.

Q. Looking at the next page, does ISO state that amphibole asbestos is probably present under polarized

light microscopy, if any amphibole fibers longer than 5 microns with aspect ratios of 20-to-1 or higher are identified?

A. Yes, it does.

Q. Did you identify by polarized microscopy amphibole asbestos fibers meeting that standard in the Johnson & Johnson talc products that you identified as having asbestos by polarized light microscopy?

A. Yes, we did.

Q. We don't have much time but we have Exhibits 3 A and 3 J, your Honor.

Dr. Longo, the Court has these. Let's go to the last two. I'm first putting up 3 I, and --

A. You have to focus it.

Q. Dr. Longo, what are we looking at here?

A. We're looking at what we call an actinolite tremolite asbestos bundle. This is under dispersion staining, which gives you the ability to, one, determine the refractive indices, which is part of the test, and, two, it allows us to look at the structure. This optical micrograph shows that this structure is 54 microns in length which meets the criteria greater than 5 microns.

Also, you can see that there are individual fibers inside this bundle; and at the resolution here,

you can see the striations and you can see them sticking out at the end. That's 54 micrometers, and this is approximately 5 or so micrometers wide. So just for argument sake, every one of those fibers are a little bit less than 1 micrometer. So we have aspect ratios here all greater than 54-to-1, which gives you greater than 20-to-1. So it meets the definition of asbestos by the ISO. In fact, they will call it asbestiform.

Q. Did you provide these representative photographs Exhibits 3 A to 3 J to the Court because they have higher resolution and they allow the visualization of bundles where you can visualize the individual fibers that make up the bundle?

A. Yes.

Q. Let's go back to the PowerPoint please.

Dr. Longo, we're back to the PowerPoint, and we're looking at this example.

Are we looking at amphibole asbestos that MAS identified by polarized light microscopy in a Johnson & Johnson talc sample that meets the generally-accepted standards of what is asbestos under that method?

A. Yes. This is anthophyllite. It met all the criteria for the crystalline structure. This

particular one is 163 micrometers long. There is individual fibers inside that bundle.

Q. That is one of the high resolution pictures you provided to the Court?

A. Yes.

Q. Just going through.

This one says "elongation." Something that's talked about in the ISO standard. In a few words, how does this depict elongation?

A. This shows that it is blue in the northeast/ southwest orientation. So this would be elongation in the fast direction.

Q. I think we saw the term "cross polars" in the ISO generally-accepted method. Is that something we see in polarized light microscopy generally-accepted methods?

A. Yes.

Q. How does this picture go to the issue of cross polars in identifying anthophyllite asbestos in Johnson & Johnson's Baby Powder under PLM?

A. I can tell from the color because of the cross polars. What cross polars does is to look for the extinction angle. The extinction angle is when the asbestos structure disappears at a certain angle. We don't show that because it would be a black screen.

This is not the extinction angle.

For anthophyllite, if you put it perpendicular or parallel, it would be extinction where no light goes through.

Here is elongation again. So we are following all that.

THE COURT: Let's sum up.

MR. BLOCK: Your Honor. Can I have a two-minute extension?

THE COURT: Two minutes.

BY MR. BLOCK:

Q. Now, we are looking at another example of MAS finding anthophyllite asbestos by polarized light microscopy in Johnson & Johnson's talc products. See that?

A. Yes.

Q. We just looked at this picture up on the screen. Can you clearly visualize -- is that what an asbestos bundle looks like under polarized light microscopy?

A. In these types of samples, yes.

Q. Why is that an asbestos bundle under tab 9 G?

A. Because it meets all the counting criteria under ISO, the asbestos or asbestiform.

Q. Two more slides.

The first is looking at the results of the PLM

testing MAS did, and if it says 58 percent -- in 58 percent of the samples, amphibole asbestos was detected by polarized light microscopy using the heavy liquid separation method. Is that correct?

A. Yes.

Q. Did MAS also do polarized light microscopy without the heavy liquid separation method?

A. Yes, we have 30 percent. So the heavy liquid separation was more sensitive. It almost doubled the positives.

Q. Is that consistent with the fact ISO does not recommend doing polarized light microscopy without doing heavy liquid separation?

A. No, they don't say that. They give you the option to do either/or, but they tell you what's the most sensitive.

Q. Finally, Dr. Longo, have you reviewed historical documents from Johnson & Johnson's production where the types of asbestos, the same types of asbestos you found in Johnson & Johnson's talc products were found in Johnson & Johnson's historical testing of both source talc mines and in the products themselves?

MS. BROWN: Objection, your Honor, as to the interpretation of these findings. It has nothing to do with methodology. There are many documents related

to industrial talc --

THE COURT: I think it is an overbroad question, so I think we are done unless you want to rephrase it.

MR. BLOCK: May I?

THE COURT: Let me hear.

BY MR. BLOCK:

Q. Is it relevant and important to you as a scientist to see if the results of your testing are consistent with the historical testing done by Johnson & Johnson and its consultants on its talc sources and on its products?

MS. BROWN: The same objection, your Honor. It remains just as broad. All of the testing ever done number one he hasn't reviewed it; number two, many there relates to products that are not at-issue here.

THE COURT: I'm going to strike it.

Do you have anything else?

MR. BLOCK: I'll just narrow it down by saying:

BY MR. BLOCK:

Q. Did you review the expert reports of Dr. Krekeler and Dr. Cook issued in this case?

A. Yes, I did.

Q. What significance is there in terms of the opinions they have expressed in this case to you in evaluating the reliability of your testing?

A. They identified the same type of asbestos that we are seeing in the Italy mine, the Vermont mine, and compared that also to Johnson & Johnson's own test for those particular mines for cosmetic talc. We are consistent with they say that is in there because of the geological formation as well as the literature as well as the testing done by Johnson & Johnson.

MR. BLOCK: Thank you, your Honor, for giving me a little extra time. I appreciate that.

THE COURT: We're going to break for lunch now. It is a convenient time. Let's be back at a quarter of 1:00, please.

THE DEPUTY CLERK: All rise.

(The luncheon recess is taken.)

(Continued on the next page.)

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A F T E R N O O N S E S S I O N

THE DEPUTY CLERK: All rise.

THE COURT: Thank you.

WILLIAM E. LONGO, resumes.

CROSS-EXAMINATION

BY MS. BROWN:

Q. Good afternoon, Dr. Longo.

A. Good afternoon.

Q. Dr. Longo, you have never personally tested a talc sample for asbestos from start to finish. Correct?

A. That's correct.

Q. And when it comes to the samples that you talked to us about this morning with counsel, you were not actually the person who looked under the microscope and ran those samples. Right, sir?

A. That is correct.

Q. What that means is you are also not the person who did the heavy density liquid preparation to get those samples ready to be looked at under at the microscope. Correct?

A. That is true.

Q. What that also means is you are not the person who filled out some of the count sheets we saw up here this morning. Correct?
A. That is correct.
Q. What that means is you are not the person who made the call when we were looking under the microscope about whether what they were seeing was a bundle or a fiber. Right, Doctor?
A. That's correct.
Q. All of that work -- the sample preparation, the looking under the microscope, the filling out of the count sheets, the making the call of a bundle or fiber -- all of that work was done by people who work for you at the company you own. Is that right?
A. Yes, ma'am.
Q. And those individuals have never provided sworn testimony under oath about the tests they conducted here in the MDL. Correct?
A. I believe that's correct.
Q. And those folks are not coming into this court to talk to us about their work looking at samples under the microscope. Correct?
A. That is correct.
Q. You are here to talk about the findings of the people that work for you at MAS. Correct?

A. That's correct.
Q. The truth is, Dr. Longo, that nowadays very little to none of your time is actually spent at the microscope testing products for the presence of asbestos. Correct?
A. I don't do that too often.
Q. Nowadays, very little to none of your time is spent doing that. Right?
A. As I said, I don't do that too often anymore.
Q. In fact, most of what you do these days is testify in court. Correct?
A. No, ma'am. I also run the company. I also give directions on what protocols to use. I'm in meetings hiring and firing; and where the direction of the science is going, what methods we are going to use for different types of applications. So, yes, I testify once to twice a week. I still have other jobs.
Q. When you say once or twice a week, Dr. Longo, the truth of the matter is you have testified at least once a week every week for the past five years. Fair?
A. That is fair.
Q. And since the time you opened your company MAS in 1988, you have given about 2,000 to 3,000 depositions. Correct, sir?
A. I think that is correct.

Q. What you testified to before, Doctor, is that working as an expert witness has actually been what has allowed your lab to survive?
A. Yes. That and every other big client we have. That's true.
Q. You told us this morning that the $30 million that MAS received from plaintiffs' lawyers didn't go to you; it went to the company. Correct?
A. That's correct.
Q. And you, sir, own 75 percent of MAS. Correct?
A. That's correct.
Q. And you have declined to testify about how much money you make at MAS. Correct?
A. That's true.
Q. And you have been testifying to that $30 million figure for a couple of years now. Right, Doctor?
A. I think it has been a year.
Q. What you testified to, Doctor, is that you think that every plaintiff's attorney in the country lists you as an expert in any type of asbestos litigation. Isn't that right?
A. They did that at one time, yes, ma'am.
Q. Your testimony is they do that without even asking you if it is okay. Right?
A. They did that for a while, yes.

Q. You testified in fact that -- you testify so much as an expert witness that it is a juggling act to try to make time for trials like this one and others. Correct?

A. Yes, ma'am.

Q. You were in Kentucky yesterday testifying at a trial there. Correct?

A. That is correct.

Q. And this morning you talked to us a little bit -- counsel had a slide up there about corporations, and you talked a little bit about work that you have done for GE. Do you remember that?

A. Yes.

Q. The truth of the matter is that 95 percent of the time you are in court, you are testifying for plaintiffs' lawyers. Right?

A. That is correct.

Q. And the fact of the matter is, Dr. Longo, is that your lab MAS has never tested cosmetic talc when you weren't being paid to do it by lawyers for the plaintiffs in litigation. Right?

A. That is correct.

Q. And you talked a lot about methodology this morning with counsel. But the truth is that you don't know anyone, Dr. Longo, who is not being paid as an

expert witness for the plaintiffs who is using the methods that you used in this case to test cosmetic talc. Isn't that right?

A. I think some part of it is right. The heavy liquid density method portion. But the other standard methodology where for morphology, EDXA and SAED is a standard method that even when people aren't using heavy liquid density separation, they are using those three steps to identify regulated asbestos.

Q. True or not true, Dr. Longo: You don't know of anyone else besides Mr. Lee Poye, expert for the plaintiffs, and yourself, using the method you are using in this case, to test cosmetic talc for asbestos?

A. Again, part of that is correct. It's the heavy liquid density portion. But anyone who has analyzed cosmetic talc using the standard methodology for the identification of asbestos would be doing the same thing.

MS. BROWN: Permission to read, your Honor?

THE COURT: Yes.

MS. BROWN: This would be in the Court's and counsel's testimony binder at tab Longo 560 from the December 4, 2018, Blinkinshop deposition, page 93, line 18, to 94, 2:

"QUESTION: Okay. But back to my original statement. You and Lee Poye are the only people that you know of in the world using the method you are using in this case?

"ANSWER: I don't know in the world. I know unless somebody -- somebody else may be using it. But for me to say who else out there is using it, if you want to know this, I don't know anybody else besides Lee and I, since we're the ones that seem to be testifying about it."

Dr. Longo, the only protocol recognized by the FDA for the analysis of talc is the USP Monograph For Talc. Correct?

A. At this time I think that is correct versus the committee that are trying to upgrade it to be more sensitive because of the problems with it, but I believe you are right.

Q. The answer to my question is yes?

A. Yes. But not --

THE COURT: I understand your answer, but I think you have answered her question.

Q. And you, Dr. Longo, did not use the USP Monograph for Talc in evaluating the MDL samples. Correct?

A. No, ma'am, we didn't.

Q. No government regulatory agency has adopted the ISO method you use here. Correct?
A. That is correct.
Q. Before you were hired as an expert witness in litigation, your lab had never used the ISO 22262 method for the analysis of asbestos in any product whatsoever. Correct?
A. That is correct.
Q. No government regulatory agency has adopted the Blount method you used here. Correct?
A. That is correct.
Q. Before you were hired by the lawyers for plaintiffs in litigation, you had never even heard of the Blount method. Correct?
A. That is correct.
Q. And you spoke a little bit this morning about that Blount method. The truth of the matter is, Dr. Longo, the Blount method cannot detect chrysotile. Correct?
A. No, ma'am, no heavy liquid density method that's being used now in the ISO method for talc can detect chrysotile.
Q. Counsel had up on the screen six minerals that are asbestos, and chrysotile is one of them. Right?
A. That is a regulated asbestos, yes.

Q. This Blount method at this time can't pick up that type. Right?
A. Not at that heavy density liquid separation, no.
Q. That's part of the method. Right?
A. Correct.
Q. This Blount method also can't pick up anthophyllite if it doesn't have a lot of iron. Right?
A. That is correct.
Q. So two of the six types of asbestos the Blount method cannot detect?
A. No, that's a little bit different. It can't detect chrysotile but it is detecting anthophyllite. It seems, though, most of the anthophyllite we're looking at has heavy iron. So it definitely finds anthophyllite, but only anthophyllite that has iron.
Q. Dr. Longo, in addition to not being able to find chrysotile, your heavy liquid density separation method can also miss anthophyllite if it is not the heavy iron anthophyllite. Correct?
A. I agree with that.
Q. And as a result you know no regulatory agency has ever adopted the Blount method. Correct?
A. I believe that's correct.
Q. And so if we can go to slide 33, the three

methods you used, Dr. Longo, in testing the MDL samples were ISO TEM. Correct?

A. Yes and no. Certainly, for the methodology for the morphology, but it was more based on the EPA AHERA.

Q. You used the ISO TEM protocol to test and you used different counting rules. Correct?

A. We used the ISO protocol, the ISO 22262-1 and 22262-2 for the ISO analysis, but the other standard methods for the methodology. That's true.

Q. We're going to talk about the -- you used ISO both for the regular old PLM testing. Right?

A. Yes.

Q. And you used ISO for the heavy density concentration TEM testing. Right?

A. Correct.

Q. And you used Blount plus PLM. Correct?

A. Correct.

Q. And those are the methods you used for these samples. Correct?

A. Correct.

Q. And before the MDL, you had issued a report a couple of years ago. Correct?

A. Yes.

Q. And we're not going to talk a lot about that

report. By and large, what you tested there were samples that the plaintiffs' lawyers had purchased off of eBay. Right?

A. I would say 60, 70 percent. The other samples came from actual plaintiffs who had saved their containers of Johnson & Johnson Shower To Shower.

Q. And you spent about two years in courts around the country talking about that testing from that original report. Correct?

A. Until this one came out, yes.

Q. But the method you used in that original report is different than the method you used for the MDL samples. Correct?

A. Correct.

Q. You used for the original eBay report something you called "modified Blount plus TEM." Correct?

A. Yes, but the modified Blount for the sample preparation which had some slight changes in the heavy density liquid and then the regulated standard methods for identifying the asbestos was the same.

Q. And none of these methods have been adopted by a government regulatory agency. Right?

A. I'm sorry.

MR. BLOCK: Assumes facts not in evidence as to whether there is a government adopted test for

talc. Objection. Assumes facts not in evidence.

MS. BROWN: I can rephrase, your Honor.

THE COURT: Okay.

BY MS. BROWN:

Q. No government has approved any one of these methods for testing cosmetic talc for asbestos. Right?

A. I'm not aware of the FDA having this method. The Environmental Protection Agency has gravimetric methods for testing for asbestos, not heavy liquid density, but concentrations methods by TEM, and, of course, the morphology rules and identification have been adopted by federal agencies because of the TEM analysis. It is really working around just the sample preparation.

Q. I want to be real specific with my question so I make sure you understand.

No government regulatory agency has adopted either ISO 22262 or the Blount method. Correct?

A. That's correct.

Q. And you were not using any of these methods prior to being hired as an expert witness in litigation. Correct?

A. Not the sample preparation portions, no.

Q. Dr. Longo, you mentioned this morning --

MS. BROWN: If I could have the ELMO, please.

Q. Dr. Longo, counsel had this slide up earlier today talking about your credentials. Do you remember that?

A. I do.

Q. And you had some questions about some of this CDC, NASA, state, municipality work. Do you remember that?

A. Yes.

Q. The truth, though, Dr. Longo, is that none of that work had anything to do with cosmetic talc. Correct?

A. That is correct.

Q. And you have never published any papers relating to talc. Correct?

A. That is correct.

Q. And none of your opinions regarding the work that you have done in this case have been submitted for peer review publication in the scientific literature. Correct?

A. That is correct.

Q. No government agency has asked you to test talcum powder. True?

A. That is true.

Q. Now, you mentioned this morning, referring to

this slide, that your shop has an FDA lab number. Do you remember that?

A. Yes.

Q. The FDA, though, has tested cosmetic talc for asbestos. Correct?

A. Yes, sent out to a contract lab.

Q. And you were not asked to test cosmetic talc for the FDA. Correct?

A. No, we didn't bid on the project.

Q. And the company that did the testing for the FDA did not use a heavy density liquid separation preparation?

A. No, they didn't, and that's one of the problems with their testing.

Q. And you had a document up here referencing the FDA's testing on a Claire's eye shadow product. Do you remember that?

A. Yes.

Q. That's testing the FDA has done as recently as a few months ago. Correct?

A. Correct.

Q. And you know that in connection with that testing, the FDA commented on the testing that it had done on cosmetic talc back in 2009 and 2010. Correct?

A. Correct.

Q. And you know the FDA referred to the testing it did in 2009 and 2010 as using the most sensitive techniques available; don't you, Dr. Longo?
A. They stated that but it is wrong.
Q. The truth of the matter is, Dr. Longo, that people have been testing cosmetic talc for the presence of asbestos for decades. Correct?
A. That is correct.
Q. And since you were hired as an expert witness in litigation on behalf of the plaintiffs' lawyers, you had been asked repeatedly in courtrooms around the country when it was that you first started testing cosmetic talc. Right?
A. That's correct.
Q. And as recently as April of this year in court in front of a jury you testified for the first time -- you testified that the first time you started testing cosmetic talc was about two to three years ago. Right?
A. That's correct.
Q. And the fact of the matter is, is that we now know that that is not true. Right?
A. Well, the testimony was true. But it looks like that I had given some testimony some years ago that we had analyzed some cosmetic talc.

Q. I want to talk a little bit about that. You have testified on behalf of plaintiffs in hundreds of cases where they are bringing a lawsuit against a company that purposefully added asbestos to a product. Correct?

A. Correct.

Q. And you have given in connection with that expert witness work, Dr. Longo; you have given hundreds if not thousands of depositions and trial testimony. Correct?

A. That is correct.

Q. And one of the things you found that you were often asked probably by defense lawyers in those situations was about potential alternative exposures that the plaintiffs may have had to asbestos. Right?

A. That is correct.

Q. So back in 2002 and 2003, when you were testifying on behalf of plaintiffs' lawyers suing other companies that potentially put asbestos in their product, you testified about cosmetic talc. Right?

A. It looks like on two occasions.

Q. And what you testified -- this was in the context of defense lawyers asking you questions if a plaintiff could have been exposed to asbestos from cosmetic talc. Right?

A. It looks that way, yes.
Q. And what you swore under oath back then was that you and your lab MAS had done studies on the asbestos content of talc. Right?
A. Yes.
Q. What you testified to is those studies had included studying finished cosmetic talc products. Right?
A. I think it was just cosmetic talc.
Q. Talc that was used in cosmetics. Correct?
A. Yes, ma'am.
Q. You remember that testimony?
A. Well, I still don't remember the testimony. I've been shown it.
Q. And what you said back then, Dr. Longo, when you were testifying against companies that made products like brakes and gaskets that had asbestos in it, you swore under oath that you had never found any asbestos minerals in any talc used for cosmetic purposes. Right?
A. That's what I have been shown, yes.
Q. And in fact, Dr. Longo, you were specifically asked whether talc that was used on babies had asbestos. Right?
A. Yes, that's the one question.

Q. And you said you had looked into it, that your lab MAS had studied it, that you had looked into talc that was used on babies, and you had not found any asbestos. Right?
A. That's what I stated.
Q. And, in fact, what you said is that you had looked for tremolite and anthophyllite, the two types of asbestos we saw up on the screen today. Right?
A. I don't recall any of it. If that's what it states, that's what I stated those years ago.
MS. BROWN: Permission to read, your Honor.
Could we have in the testimony binder Longo 561, which is a deposition Manbodh from May 28, 2002, at page 106, lines 11 to 19:
"QUESTION: What other exposures, household contacts would people have other than those that you've mentioned?
"ANSWER: Usually, that's it.
"QUESTION: Talcum powder that was used on babies, did some of that contain asbestos?
"ANSWER: We've looked. We have not found it.
"QUESTION: You are not aware of any?
"ANSWER: I'm not aware of us ever proving that talcum powder had tremolite or anthophyllite."
That was your testimony, correct, Dr. Longo?

A. That's what it states, yes.
Q. And the truth of the matter is, Dr. Longo, back in 2002 you said that the claims that cosmetic talc could have asbestos were an urban legend in your field. Isn't that right?
A. That's what the testimony says.
Q. And you know what an urban legend is, don't you, Dr. Longo?
A. Yes, I do.
Q. And the first time I asked you that, you told me an urban legend was somebody who is in an urban environment has a legend. Do you remember that?
A. I do. I was kind of shocked what is this.
Q. You know now what an urban legend is. Right?
A. Yes, ma'am. We discussed it at that trial, and I agree with you.
Q. It is a myth; isn't it?
A. Yes, it is.
Q. A fictional story someone is trying to portray as true. Correct?
A. That's what an urban legend would mean in that context.
Q. I want to talk a little bit, Dr. Longo, about the nature of your findings here and the nature of your opinions.

So to be clear, you are not giving any opinions here about health effects. Correct?
A. That is correct.
Q. You are not testifying about any alleged health effects from fibrous talc. Correct?
A. That's correct.
Q. Or cleavage fragments or what you have identified as regulated asbestos, none of that. Right?
A. That is correct.
Q. And let's talk a little bit about the percentage of asbestos that the folks working at your shop have claimed to find here. If we could look at the overview slide of the findings.
The amount of asbestos that your analysts claim to have found in Johnson & Johnson products is well below 1 percent. Correct?
A. That is correct.
Q. And so here are your MDL findings, and they range in number. For example, we highlighted here the highest concentration that your folks claim to have found in a 1991 bottle is .0092 percent. Do you see that?
A. I do.
Q. That is 9.2 thousandths of a percent. Right?

A. That is correct.
Q. And the lowest concentration, in fact, that your folks claim to have found in a finished product is .000033 percent. Right?
A. Correct.
Q. If we could go to the next slide with those two. And that's 3.3 millionths of a percent. Correct?
A. Yes.
Q. And you, Dr. Longo, yourself have described levels like that as ultra trace?
A. Correct.
Q. And in many of the MDL samples your analysts didn't detect any asbestos at all. Correct?
A. Let's see. There was 31 percent non-detect.
Q. So there were bottles from Vermont where your analysts detected no asbestos. Correct?
A. Correct. Bottles from Italy that were at non-detect.
Q. And what you state in your report, Doctor, is that you were of the opinion that individuals who used Johnson & Johnson talcum powder products in the past would have more likely than not been exposed to significant airborne levels of both regulated amphibole asbestos and fibrous asbestiform talc. Right?

A. That's correct.
Q. So it is your opinion that individuals who used this product have a significant exposure. Correct?
A. Yes.
Q. But you haven't done in this MDL an exposure analysis. Correct?
A. Not with these samples, no.
Q. Meaning you have not calculated, Dr. Longo, whether or not it is even possible for those ultra, ultra trace levels that we just looked at to make it out of a bottle and into a human being who is using that product as a consumer. Correct?
A. We haven't done that study. If it is in the bottle, and even though those, quote, ultra, trace concentrations are still very significant, it is going to get out of the bottle, will get up in the air, and be in the breathing zone.
THE COURT: How do you use the term "significance"?
THE WITNESS: I term it as, can we measure it? So it is 10 to 20 times above background. In this case, there is very little to no background involving tremolite and anthophyllite. It is not on a health basis. It is, is there an exposure?
MS. BROWN: May I follow up on that, your

Honor?

THE COURT: Yes.

BY MS. BROWN:

Q. You just said 10 to 20 times above background. The fact of the matter here, as it relates to the MDL samples, you haven't measured or calculated anything at all?

A. Not with the MDL samples.

Q. And it is not that your facility at MAS doesn't know how to do an exposure simulation, Right?

A. Right. We have done those, not with the MDL samples.

THE COURT: What was your opinion based on; it was significant in the MDL?

THE WITNESS: That it is significant in that they would have had an exposure that more than half of the samples that we measured were positive for asbestos. We have done exposure calculations in the past with Johnson & Johnson in which we have calculated these exposures with Johnson & Johnson products and made a measurement.

THE COURT: How about these samples that you were given?

THE WITNESS: No, ma'am.

THE COURT: You may proceed.

BY MS. BROWN:

Q. In fact, though, Dr. Longo, even though you have done no study to quantify whether or not an individual using any of the samples in the MDL would have any exposure, you do know that by using any of the samples in the MDL, an individual would not have an exposure greater than OSHA's permissible exposure limit for an eight-hour average. Correct?

A. That is correct.

Q. And just to orient us on that, OSHA regulates the amount of asbestos that workers can be exposed to in something called a Permissible Exposure Limit. You are familiar with that. Right?

A. Yes, I'm familiar for an industrial site and a working site. OSHA doesn't regulate in residential homes especially infants and children that would have the potential to be exposed at some point.

Q. And the OSHA PEL limit is .1 fibers per c.c., right?

A. Yes.

Q. And you know that they haven't done a specific calculation, any consumer exposure for an eight-hour time-weighted average would be less than the OSHA PEL. Correct?

A. That is correct.

Q. And you have no reason, Dr. Longo, because you haven't done the calculation, to dispute the findings of defense expert Dr. Nadia Moore as it relates to exposure levels. Correct?
A. I haven't seen that report.
Q. Well, the asbestos briefing was listed as a supplemental item that you reviewed and relied on. Did that make it to you?
A. It made it to me but I haven't reviewed the whole report, no.
Q. Fair enough. Dr. Moore's report, for the Court, at page 43, indicates, for example, that the annual average exposure to asbestos fibers from ambient air is more than three times higher than the alleged exposure from talc.

You, for example, have not done any study to dispute that?
A. I haven't done the study, but you can't have an ambient level and then have an additional exposure and not add to that. That doesn't make a lot of sense to me. I have seen that in the past many times. If you say there is an ambient level, any additional exposure is adding to that ambient level. You can't have an exposure lower than the ambient level if you are saying there is asbestos there.

Q. And you have not done any calculations as it relates to the MDL samples on how, if at all, if a consumer's exposure would relate to any other exposure limits. Correct?

A. In dealing with the MDL samples only, you are correct.

Q. What you have done, though, Doctor, in the past is testified about whether a person could be exposed to asbestos from a product that only contained a trace level of asbestos. Right?

A. That is correct.

Q. And you and I talked about that some a couple of months ago in front of a jury in South Carolina. Right?

A. Yes, ma'am.

Q. And what you testified to was that something called thin set cement, is a very dusty product. Right?

A. During the mixing, that's correct.

Q. Because what happens with this product is that if you got to take the cement and add water to it and mix it up. Right?

A. Yes.

Q. And during the process of doing that, the person doing the mixing, and everybody else around them,

could inhale a number of fibers. Right?
A. That's correct.
Q. And you have given testimony in the past in a case involving thin set cement, that contained 1 percent asbestos. Right?
A. Yes. I thought it was trace.
Q. Well, 1 percent is trace and less than 1 percent, Dr. Longo, less than .1 percent, according to you, is ultra trace. Right?
A. Well, the term for ultra trace is five zeros. For me, trace is below 1 percent.
Q. And so you testified in a case regarding the thin set cement product that contained less than 1 percent asbestos. Right?
A. That's correct.
Q. And the question that was posed to you was whether a person who was mixing up that cement 20 times a day for 40 years would have a significant exposure to asbestos. Right?
A. That is correct.
Q. And your testimony under oath in that case was that because the product only contained 1 percent asbestos --
A. I thought there was less than 1 percent, trace amounts.

Q. Less than 1 percent, the individual would not have a significant exposure. Right?
A. I think I said it a little differently. If you don't mind, we can read it.
Q. Sure.
MS. BROWN: Your Honor.
Q. We're looking at your testimony, Longo 555. It is a deposition you gave April 29, 1997, Sorise deposition.
A. What was the number?
Q. Longo 555, page 159, lines 10 to 23, and you were asked this question:
"QUESTION: Let me ask you to assume that someone for a period of around 40 years, that that person either mixed thin set cement between 1 and 20 times a day, and they did this for 40 years. Do you have an opinion at all regarding the nature or extent of that exposure to asbestos?"
There was an objection. Your answer?
"ANSWER: Since it is thin set cement that has only trace levels of asbestos chrysotile in it, I don't believe that would be very large exposure at all."
That was your testimony. Correct?
A. Yes.

Q. Dr. Longo, I want to talk a little bit about what is and what is not asbestos.

And if we could look at slide 1, please.

Dr. Longo, you have seen this or a similar slide before. Correct?

A. I have.

Q. To start, we can agree that not all amphiboles is asbestos?

A. Yes.

Q. Amphibole minerals occur in both the asbestiform and non-asbestiform habits. Correct?

A. That's correct.

Q. And so, for example, there are two kinds of tremolite: one that is asbestos and one that is not. Correct?

A. No. You can argue over the asbestiform. If it meets the standard methodology that we use to identify asbestos, it is regulated asbestos.

MS. BROWN: Permission to read, your Honor?

THE COURT: Yes.

Q. Longo 521, October 25th, 2017, Herford trial testimony at page 1377 lines 2 through 5:

Again, this is the October 25th, 2007, Herford trial testimony at page 1377, lines 2 to 5:

MS. BROWN: We'll go back to that.

THE COURT: You can just read it.

MS. BROWN: It is going up now.

Q. You were asked, Dr. Longo, during this Herford trial:

"QUESTION: Okay. Now, you will agree there are two kinds of tremolite: one that is asbestos and one that isn't. Right?

"ANSWER: I would agree."

Correct?

A. That's correct. If that's the question you asked me, I apologize. I misunderstood.

Q. The word tremolite, Dr. Longo, does not automatically mean asbestos. Correct?

A. That's correct.

Q. A cleavage fragment is not asbestos. Correct?

A. That is correct, if it is a true cleavage fragment it is not asbestos.

Q. A cleavage fragment is a crushed up piece of non-asbestiform rock. Correct?

A. That is correct.

Q. Now, I want to talk, Dr. Longo, you had some slides this morning relating to the same topic that I'm talking about here, what is and what is not asbestos, and I want to ask you some questions about those, if I could just switch over to the ELMO.

This was one of the slides that counsel showed you this morning. Do you recall talking about this slide?

A. Yes.

Q. And you had some questions and answers regarding what an asbestiform mineral is from the McCrone Particle Atlas. Correct?

A. Yes.

Q. And the very next slide you were shown was this one from the EPA AHERA regulation. Do you see that?

A. I do.

Q. And this is AHERA's definition of a fiber. Correct?

A. That is correct.

Q. But you know, of course, that AHERA, the regulation, defines asbestos. Right?

A. Correct.

Q. And you didn't put that definition above. So I want to show it, if we could go to slide No. 4, please.

AHERA defines asbestos as the asbestiform varieties of chrysotile, crocidolite, amosite, anthophyllite tremolite and actinolite. Correct?

A. That's correct.

Q. And AHERA also defines asbestiform?

A. Correct.
Q. And AHERA makes a distinction between asbestiform and non-asbestiform minerals. Correct?
A. That's what AHERA states. That's not true; that's a general definition for asbestos-added products.
Q. Let's look at the AHERA table at Longo 516 AHERA at page 80, please.

You know, Dr. Longo, that in fact all of the regulatory authorities including those on which you rely in this case have a definition of asbestos. Right?
A. Asbestiform.
Q. Well, we're going to look at the definition of asbestos. But let's talk quickly about AHERA's table here, the asbestos minerals and their non-asbestiform analogs. Do you see that?
A. I do.
Q. And AHERA makes the distinction between asbestiform minerals and non-asbestos minerals. Correct?
A. That is correct.
Q. And just going backwards in the outline here, OSHA is another health-based organization you are familiar with. Right, Doctor?

A. I am.
Q. And you know OSHA also defines asbestos. Correct?
A. It does.
Q. And what OSHA defines asbestos as is including chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos and actinolite asbestos. Correct?
A. That is correct.
Q. And what OSHA says, if we could go to slide 3, please, is that for purposes of this regulation, the mineral must be one of the six minerals covered and must be in the asbestos growth habit. Correct?
A. Correct.
Q. And you know, Dr. Longo, that OSHA in particular changed the definition of asbestos in 1992 specifically to exclude the non-asbestiform minerals from its definition. Correct?
A. That's what they stated.
Q. And in addition to OSHA and EPA, you know ISO, the regulation you rely in part in this case, it also has a definition of asbestos; does it not?
A. It does.
Q. And if we could look at slide 6, we'll look at how OSHA defines asbestos.

THE COURT: ISO. You said "OSHA."

Q. ISO's definition of amphibole asbestos is "amphibole in an asbestiform habit." Correct?

A. Correct.

Q. Now, I want to talk a little bit, then, Dr. Longo, about the definition of asbestos that you employed in your report. Okay?

A. Using the standard methodology, that is correct.

Q. So for purposes of your report, Dr. Longo, you have used a definition of a counting rule. Correct?

A. Well, it is the methodology for determining the morphology. So it gives you the dimensions of what asbestos is.

Q. And, so, when you state, for example, in your report here, your February 1st, 2019, MDL report, that "amphibole fibers or bundles with substantially parallel sides and an aspect ratio of 5-to-1 or greater and at least .5 microns in length were counted as regulated asbestos fibers and bundles per standard TEM counting rules."

Correct?

A. Correct.

Q. And those were some of the counting rules that you described this morning, correct?

A. That is correct.

Q. If we could just go back to the ELMO for a second. This was AHERA's definition of a fiber that you pointed to this morning. Correct?
A. Correct.
Q. And you used the AHERA talcum powder counting rules as part of your report here. Correct?
A. For the morphology determination, yes.
Q. But, Dr. Longo, when you crush up a non-asbestiform rock, it can shatter into long and thin pieces. Correct?
A. Sometimes, yes.
Q. And those long, thin cleavage fragments can actually resemble asbestos fibers. Correct?
A. That can happen.
Q. In fact, what can happen is that non-asbestiform, the non-asbestiform version of these minerals, when it is crushed up, it can generate particles that have a minimum length greater than or equal to .5 microns, an aspect ratio of 5-to-1, and substantially parallel sides. Right?
A. There is a slight chance of that but the probability is not too high. But, certainly, it might happen.
Q. Well, Dr. Longo, in fact, the ISO standard on which you rely says that, generally, when you crush up

the non-asbestiform rock, it is going to cleave in elongated fragments that conform to the counting rules definition of a fiber. Right?

A. It does say that, but you have to look at the totality of what you are analyzing here. If you look at the Blount chart, if you look at the Campbell chart, if you look at what happens to talc, tremolite and anthophyllite, the overwhelming majority of these cleavage fragments are less than 3-to-1 aspect ratio as compared to the ones they say are longer, and what they compare to tremolite asbestos. I understand your point. But it is not affecting the analysis of what regulated asbestos is.

Q. You said a lot, and we're going to talk about cleavage fragments. You said the overwhelming majority of these fragments are less than 3-to-1. Did I hear you right?

A. In the Blount and Campbell articles, yes.

Q. You don't know if the overwhelming majority of particles in the the MDL samples are less than 3-to-1. Right?

A. Well, we didn't count those. But the overwhelming majority of the particles we did count are not cleavage fragments; they are bundles of fibers.

Q. You did not count in your analysis of the MDL samples any particles that were less than an aspect ratio of 3-to-1. Right?
A. That is correct, but in previous work where we've looked at tremolite, anthophyllite, the amount of 3-to-1, and adding everything that's there, only moved the needle about one point.
Q. Dr. Longo, I don't want to get involved in other testing you have done. I want to talk about what you did in the MDL. And just to close the loop on this, in the MDL you didn't count or record or document or give us any information that would show that you quantified the number of particles that were less than a 3-to-1 aspect ratio. Right, sir?
A. Just speaking about the MDL, that is correct.
Q. So we could look at slide 11, please. This comes from the ISO definition of cleavage fragment, and this is one of the ISO standards on which you rely, and defined the cleavage fragment as a fragment of a crystal that's bounded by cleavage basis. Correct?
A. That's correct.
Q. And the note that the ISO standard on which you rely has here is that the crushing of non-asbestiform amphiboles generally yields elongated fragments that

conform to the definition of a fiber but rarely have aspect ratios exceeding 30-to-1. Correct?

A. That's what it states.

Q. Crushing up -- just because you crush up a non-asbestiform rock, it can never magically make that rock a piece of asbestos. Correct?

A. If it does not meet the methodology and the counting rules, no, it cannot be counted as asbestos.

Q. If you start out with a non-asbestiform rock and you crush it up, even if it crushes into pieces that measure up to your definition of a fiber, there is not some magical transformation that happens that turns those pieces into asbestos. Right?

A. No, there is no magic involved here. If it meets the definition, it is a regulated asbestos fiber. But, as I've stated, most of the particles we have counted are bundles which by definition, no matter what the aspect ratio is, are not cleavage fragments.

Q. I have questions about the bundles.

But to clear this out, Dr. Longo, you can't take pieces of non-asbestos rock, break it up and call it asbestos. Correct?

A. If it is all non-asbestos rock and there is no asbestos particles in there, that is correct.

Q. But what you have testified to in the past, Dr. Longo, is that when one of your analysts sees a non-asbestiform amphibole cleavage fragment, if it has substantially parallel sides, if it has an aspect ratio of 5-to-1 or greater and it is at least .5 micrometers long, the analyst will count that as a regulated asbestos structure. Correct?

A. If the analyst knows it is a cleavage fragment, in the TEM, or we don't count cleavage fragments in the PLM, no, you wouldn't count it. If it meets the standard methodology for the counting rules by EPA, 10-to-1, they reject it, 5-to-1, it has the chemistry, it has the right electron diffraction patterns, you would count that.

MS. BROWN: Permission to read, your Honor?

THE COURT: Yes.

BY MS. BROWN:

Q. From the Longo testimony, binder at tab 511, I would like to read a question and answer, Dr. Longo, from your February 26, 2019, Olsen trial testimony at page 1717, lines 3 to 13:

"QUESTION: When your firm MAS is analyzing talc samples, if one of your analysts who is conducting the test sees a non-asbestiform amphibole cleavage fragment, it has substantially parallel

sides, if an aspect ratio of 5-to-1 or greater, and is at least 5.5 micrometers long, the analyst will count that as an asbestos structure. True?

"ANSWER: Meets that definition, that is true.

"QUESTION: If he finds those things, he will count it as an asbestos structure. Correct?

"ANSWER: As a regulated asbestos in that population, yes."

A. No. It's not that the analyst knew it was a nonasbestos amphibole cleavage. It's if that amphibole cleavage was there and it met the definition, they would count it. The analyst --

Q. Dr. Longo, this was your testimony during the Olsen trial. Correct?

A. I see it written there. I don't see what else was asked in that. In TEM that is one of the issues. An analyst would not count if he knew somehow it met the definition it was nonasbestos amphibole cleavage fragment. No, he would not count that if he knew.

THE COURT: She put it into the question. It says: If your analyst is conducting the test and sees a non-asbestiform amphibole cleavage fragment -- it says it in that question that is what they are they are seeing.

THE WITNESS: I see that.

Q. And your answer was:

"Yes, it meets that definition. And if he finds it -- see, if he finds those things, a non-asbestiform amphibole cleavage fragment, he will count it as an asbestos structure."

And your answer was:

"As a regulated asbestos in that population, yes."

That was your answer. Correct?

A. I would have to see if there is something more to it, but that is what it states, yes.

Q. And one of the things you told us, Dr. Longo, is that where you are identifying individual fibers as asbestos, you are not trying to make a determination about whether those minerals grew in the asbestiform habit?

A. Or a single fiber without any information, that's correct.

Q. But, Dr. Longo, the ISO method on which you rely in fact says that it is necessary to discriminate between the asbestiform and non-asbestiform analog of these minerals; doesn't it?

A. That's correct.

Q. Let's take a look if we could at Exhibit A 75, which is the ISO 22262-2 method that you rely on, and

I'll direct everyone's attention to page 14.

What this method is talking about are tremolite, actinolite, richerite and winchite. Correct?

A. That's correct.

Q. And what this ISO standard on which you rely states is that these types of minerals generally occur as accessory minerals. Correct?

A. That's what it states.

Q. And what this ISO method on which you rely states is that since the non-asbestiform analogs of the amphiboles are not generally regulated, it is necessary to discriminate between the asbestiform and the non-asbestiform analogs of those minerals. Correct?

A. That is correct.

Q. Nevertheless, Dr. Longo, in making your call, when your analysts are making the call, what they are seeing measures up to a counting rule definition of a fiber. They are not purporting to determine whether or not that particle is asbestiform or not. Right?

A. The analysts do not make that decision, but they are asbestiform. Asbestiform is the sample definition of that. It forms like asbestos or fibrous, especially the bundles. As pointed out by EPA, when

they look at the counting criteria for the aspect ratio of 5-to-1 to 10-to-1, that most of the cleavage fragments in analogs fall below 5-to-1.

Jim Millete pointed out, the best aspect ratio is 5-to-1 and greater, as pointed out in Blount and Campbell for --

Q. Dr. Longo, can you get a little closer to the microphone.

Let's do this real quick. Where your analysts identify individual fibers as asbestiform, they are not purporting to make any determination as to whether they grew in the asbestiform habit. True or not?

A. The analysts are not making that decision. The only decision they are making is that it is fibrous, which meets the asbestiform definition, and does it have the morphology as stated by the Environmental Protection Agency for regulated asbestos.

THE COURT: Your answer to the question was, yes, they are not making that decision. Is that what I heard?

THE WITNESS: Yes, ma'am.

THE COURT: Thank you.

Q. Let's talk in a little bit detail about the AHERA regulation on which you rely. Okay?

A. Yes.

Q. You used the AHERA counting rules in this case. Correct?
A. That is correct.
Q. And what AHERA is, it is a regulation that stands for the Asbestos Hazard Emergency Response Act. Correct?
A. That is correct.
Q. If we could take a look at slide 12, please.
What this regulation is really all about, Dr. Longo, is when there has been asbestos found in schools and it's been remediated, this regulation is concerned about going back in and making sure the school is safe for kids to go back. Correct?
A. Correct.
Q. So these counting rules that you rely on here come from a regulation that is aimed at making sure schools have been rid of asbestos. Correct?
A. The air samples are clean enough to allow people back in, yes.
Q. But what that means, Dr. Longo, is that before these regulations even come into play, you've had a determination that there is asbestos-containing materials in a school. Right?
A. Yes, that's correct.
Q. And asbestos-containing materials per this

regulation mean more than 1 percent. Correct?
A. Correct.
Q. And so what AHERA contemplates as No. 1, someone has found more than 1 percent asbestos-containing material in a school. True?
A. Yes, at times. If they -- only if the schools or the institute decide that they feel that there is no asbestos there, they have to test it. So for -- so information to the schools, if they agree there is asbestos, they don't have to do the testing. You are only required to do the testing to determine asbestos if you say there is no asbestos.
Q. First of all, there has been a determination of an asbestos-containing material. Correct?
A. Correct.
Q. Second, there has been remediation at the school. Right?
A. Correct.
Q. And then there is testing that's being done to make sure that the school is safe for kids to go back in. Right?
A. Correct.
Q. That's the context of these counting rules on which you rely and which we saw in your PowerPoint presentation with counsel. Right?

A. That's correct.
Q. And so if we look back at the Elmer, for example, this definition of a fiber comes from that same regulation we were just looking at. Right?
A. Yes.
Q. A regulation that doesn't even apply until there has been a determination that there was at least a 1 percent asbestos-containing material in a school. Right?
A. Sort of. It's based on the asbestos-containing material as well as the same material that has accessory minerals in it that include things like tremolite, richerite -- and you have to understand, even though, say, for W.R. Grace Monokote Fireproofing, the majority of that material is made up of Libby Montana vermiculite. Not only would you be looking at the chrysotile there, you would be looking at the accessory minerals tremolite, actinolite, and that would be part of it.

A lot of these asbestos products like Zonolite acoustical plastic have a lot of accessory minerals that are tremolite and actinolite. So the laboratory who was analyzing the samples may never have any idea on what was taken out of the building. They just count it the same all the way through.

Q. My question is much simpler than that. Let's do it like this or we can read it and put it on the screen: The question is: Before the counting rules from AHERA ever come into play, you've had an analysis that has found already in that school asbestos-containing materials. Correct?
A. Maybe. They have some idea that there is asbestos there. If they did the PLM analysis, yes.
Q. If it has been analyzed, that's correct?
A. That is a correct statement.
Q. The answer to my question, if someone has gone in and analyzed it, there has been a determination that the school contained asbestos-containing materials. Correct?
A. Correct.
Q. And that's when the counting rules on which you rely come into play. Right?
A. When you do the TEM analysis for any air sample that has to do with that, outside, inside, you use the standard methodology by the EPA to identify asbestos.
Q. My question was real simple. That is when the counting rules on which you rely come into play, right, Dr. Longo, when you use that protocol, that standard methodology for any type of air sample analysis, that would be correct, or any TEM analysis?

And, you know, because we just look at the review of the levels that your analysts are claiming to find here, the levels of asbestos your analysts claim to find in Johnson & Johnson's product is nowhere near 1 percent. Right?

A. They are less than 1 percent, that's correct.

Q. Significantly less than 1 percent. Right, Dr. Longo?

A. Two to three orders of magnitude less.

Q. 3.3 millionths of a percent. Right, Doctor?

A. And higher.

Q. Up to 9.2 thousandth of a percent. Right?

A. Hundreds, thousands, three orders of magnitude.

Q. That's as high as it gets. Right?

A. For these samples, that's correct.

Q. I want to talk a little bit about your visual TEM that your analysts in this case did. Okay?

A. Yes.

Q. Just to orient us, this TEM methodology, it cannot tell me the difference when it comes to a single fiber about whether or not it is asbestiform or non-asbestiform. Right?

A. I think I have agreed in the past, looking at a single fiber in a vacuum versus looking at a population from a mine, numerous samples that what you

can say is regulated asbestos. But without any additional information, I would not call it asbestiform or non-asbestiform.

Q. You have been asked this question before. Right?

A. Yes.

Q. Let's just see if we can agree and move on.

TEM cannot tell you if you identify a single fiber whether or not it is asbestiform or non-asbestiform. Correct?

A. Correct. I think I've been asked if it is in a vacuum with no other information other than saying it's regulated asbestos it would not say it's asbestiform or non-asbestiform.

MS. BROWN: Permission to read, your Honor?

THE COURT: Yes.

MS. BROWN: Could I have Longo 666. This is your trial testimony from February 20th, 2018, from the Lanzo trial. I'll read page 3021, lines 4 to 9:

"QUESTION: My question to you, Dr. Longo, is that transmission electron microscopy cannot tell you if you identify a single fiber whether or not that particle is asbestiform or non-asbestiform. Correct?

"ANSWER: That is correct."

Now, in addition, Dr. Longo, to your testimony

on this score, the ISO TEM method on which you rely also states that it cannot discriminate between individual fibers of asbestos and non-asbestos amphiboles of the same amphibole mineral. Correct?

MR. BLOCK: Can you state which ISO standard you are referring to by number, please.

MS. BROWN: ISO 13794, 1999, at page 8, section 1.1. It is also on the slide.

BY MS. BROWN:

Q. Dr. Longo, this TEM method on which you rely states right on its face, does it not, that the TEM method cannot discriminate between individual fibers of asbestos and non-asbestos analogs, correct?

A. That's what that particular method says for the analysis of TEM samples.

Q. And that's the method that your analyst used to analyze cosmetic talc. Correct?

A. No. We used the ISO 13794 for the definition of fibers. The ISO 22262-1-2 provides the methodology and it is the only method out there for cosmetic talc.

Q. You know, Dr. Longo, because you read it and rely on it that ISO 22262-2 refers to this method as indispensable for TEM analysis. Correct?

A. Correct.

Q. Now, while you have agreed that for a single

fiber you cannot distinguish between asbestiform and non-asbestiform, in your view, Dr. Longo, when your analyst identifies a bundle, it is by definition asbestiform. Correct?

A. Correct.

Q. And your original report on the eBay samples was done using TEM. Correct?

A. Correct.

Q. And we spoke earlier this morning, you used a modified Blount preparation and paired that with TEM for your March 2018 report. Right?

A. Correct.

Q. And that report, as we spoke about earlier, was by and large from eBay samples purchased by the plaintiffs' lawyers. Correct?

A. Correct.

Q. And that report was the subject of your testimony around the country for about two years. Correct?

A. I think that's correct, yes.

Q. You are not using that methodology here as it relates to the MDL samples. Correct?

A. No. It's the same thing. The ISO 22262-2 heavy liquid density separation is almost identical to the Blount separation.

Q. But you know it is not the same at all?
A. That is not true. It uses the centrifuge and the heavy liquid density. The main difference is it has a 2.81 density versus the --
THE COURT: Keep your voice up.
THE WITNESS: -- has 2.85. It is very close.
Q. The method you used for the beginning of your testimony in this litigation, Dr. Longo, it was modified from Dr. Blount's paper. Correct?
A. Correct.
Q. And you changed some things in Dr. Blount's method. Correct?
A. Correct. We changed that from the 2.81 heavy liquid density, and we went to 2.85, and we used TEM instead of PLM.
Q. And you changed how long you spun the centrifuge. Correct?
A. We changed the RPMs and we changed the length of time.
Q. And unlike Dr. Blount, she paired her preparation with PLM in your original report that you are not using anymore; you paired that with TEM. Correct?
A. Yes, ma'am.
Q. And this modified Blount plus TEM method is not

a method you have used to test the MDL samples. Correct?

A. I would disagree because it is the same protocol that we modified to. Go over it. We used 2.85 heavy liquid density separation in the Blount method. We used that in the ISO 22262-2 per as the method. We used transmission electron microscopy instead of PLM in the Blount method. In the 22262-2 it says you can use this preparation for PLM, SEM and TEM.

Q. How long do you spin the samples with the modified plus TEM?

A. I believe it was 60 minutes or so.

Q. How long do you spin the samples in the MDL?

A. I believe they are the same.

Q. Let's move on, Dr. Longo.

In your original report you found that 53 percent of the structures that your analysts were reporting were bundles. Correct?

A. Correct.

Q. And in your MDL report, which now employs the ISO methodology and -- are I'll rephrase the question.

Now, in your updated MDL report, Dr. Longo, your analysts are now finding 93 percent bundles. Correct?

A. That is correct.

Q. And that is in fact an increase of 40 percent in the number of bundles that your analysts purported to find in your original report versus your MDL report. Correct?

A. That's correct. But you are not really comparing the same thing between the two.

Q. What I want to compare, Dr. Longo, are some of the pictures from your original report with some of the pictures from your MDL report.

So if we could look at Longo at 520 A, this is an image on the left from your 2017 report where your analysts concluded that they were looking at a single fiber. Correct?

A. That's correct.

Q. And the image on the right is from your MDL report where your analysts concluded they were looking at a bundle. Correct?

A. Correct.

Q. And to orient us again about this bundle fiber business, when it's a single fiber, you can't tell if it is asbestiform or non-asbestiform, but in your view, when it is a bundle, it is by definition asbestiform. Right?

A. Well, no. Wait a minute. When we have a population of fibers here and not all just 5 to 1 or

greater but 10-to-1, 20 to 1, 30-to-1, and they are coming out of a population in a particular mine and a particular container, they meet the definition of asbestiform because asbestiform definition is fibrous-like asbestos. So we are not dealing with every time you see a single fiber that meets the standard methodology that you have a population of them in a population of bundles that's asbestiform.

Q. Dr. Longo, in your opinion a bundle is by definition asbestos. True?

A. Asbestiform, a single fiber is asbestos if it meets the definition.

Q. In your opinion, a bundle is by definition asbestiform. Correct?

A. Yes.

Q. And in your original report the picture on the left shows a call by your analyst that it is a single fiber, and the picture on the right shows a call it is a bundle. Correct?

A. Yes.

Q. The next one, this is a picture on the left from your 2017 report where your analyst at MAS made the call it was a single fiber. True?

A. That is true.

Q. And we have a picture on the right where your

analyst made a call it was a bundle. Correct?
A. That is correct.
Q. One more, Dr. Longo, comparison from the two reports. We have a picture on the left here from the 2017 report where your analysts concluded this was a single fiber, and a picture from the right where the call was made that it was in fact a bundle. Correct?
A. That is correct.
Q. And the truth is, Dr. Longo, when it comes to the determination about whether something is a single fiber or a bundle, you rely on your analysts to correctly distinguish between a single fiber and a bundle. Correct?
A. That is correct.
Q. And this determination is it a fiber or a bundle is not something the microscope automatically does. Right?
A. It does not automatically do it.
Q. This is a determination made by the analyst sitting down and looking at the samples. Correct?
A. Yes. The analyst is sitting down looking at the sample.
THE COURT: You have to stay closer to the microphone, please.
A. The analyst can change the focal plane. The

analyst can flip in another type of lens that increases the magnification by 10,000 times -- excuse me -- 10 times. So the analyst is making the decision. These are two different things. One is .4. One is .2. And the analyst can see that while he is doing it. The one before that you can actually see some of these fibers protruding at the end of it. So the analyst does make the decision, but these are some that you are looking at it on a two-dimensional plane. You have to be sitting at the microscope to see the full breadth of it.

Q. That's why it's hard for us not having you as the person who actually looked at the microscope to be able to look back and explain what happened. Right?

A. No. You don't need that.

Q. You were not the person who sat at the microscope and made the calls on these fibers and bundles. Correct?

A. That is correct. But we've had verification from outside laboratories come in and verify the fibers and bundles.

THE COURT: How do they verify?

THE WITNESS: They get the TEM grid. We tell them what grid openings to look at. They go and look at it and say "fiber," "bundle" and that it is

anthophyllite or tremolite. We had an independent lab do that, Lee Poye, and he found 90 percent bundles in those MDL samples wherein those same samples we found 80.

MS. BROWN: This sounds like something that has not been disclosed. I'm going to ask him something very similar to that right now.

MR. BLOCK: He gave that testimony on direct and the verification that was done -- and also can we take a couple of minute bathroom break?

THE COURT: We will. You want to do it now?

MR. BLOCK: No. At the Court's convenience.

THE COURT: We will in a few minutes. I want to break up the afternoon appropriately.

BY MS. BROWN:

Q. Following up, Dr. Longo, on Her Honor's question, one of the things you do from time to time at your MAS shop is do some reports on your analysts. Correct?

A. Correct.

Q. And one of the things you commissioned in September of 2018, you and Dr. Rigler, was co-efficient of variation report. Right?

A. That is correct.

Q. And incidentally, Dr. Longo, Dr. Rigler is your

co-author on your MDL reports. Correct?
A. That is correct.
Q. And Doctor Rigler, as of late, is no longer employed by MAS. Correct?
A. That is correct.
Q. And you have declined in your depositions to talk about the circumstances that led to Dr. Rigler's departure. Correct?
A. Correct. It is our company policy not to discuss why people leave MAS, but I will state that.
Q. Dr. Rigler is getting ready to turn 65 --
THE COURT: He's not old.
A. And he's been commuting 90 miles each way for 30 years, and I won't tell you why he left. But I will tell you the entire time Dr. Rigler, from the day he started until the day he decided to leave MAS, he was an outstanding employee.
Q. I want to talk about a report that Dr. Rigler and yourself commissioned, the coefficient of variation report, from September of 2018. Are you with me?
A. I am.
Q. All right. This was an analysis to determine the level of variation in how your analysts report asbestos from one analyst to the next in the same

sample. Correct?
A. Yes and no. It was to determine how many asbestos structures per grid opening that they counted. It was never designed for a fiber bundle coefficient variation.
Q. For counting asbestos structures from one analyst to the next. That's what this report was aimed at doing. Right?
A. Exactly asbestos structures.
Q. One of the things you know, Dr. Longo, is that when your analysts report on the structures, they are seeing under the TEM microscope, they fill out a count sheet. Right?
A. That is correct.
Q. And you have produced a whole lot of count sheets in this litigation. Correct?
A. That is correct.
Q. And count sheets -- and I think I have one here -- a count sheet is something that looks like this. Correct?
A. Yes, ma'am.
Q. And so when you say they are figuring out the structures, this is where they would record that information. Correct?
A. That and take a photograph.

Q. And so these are the types or the categories of information that your analysts are recording when they are looking at a microscope under TEM. Correct?
A. That is correct.
Q. So you ran this coefficient of variation exercise with Dr. Rigler in 2018. Right?
A. Yes.
Q. And so to do that, what you did is you bought a bottle of Johnson's Baby Powder off the shelf, and you spiked it or you added to it tremolite asbestos and anthophyllite asbestos. Right?
A. Yes.
Q. And you spiked it with .3 percent asbestos?
A. Yes.
Q. Orders of magnitude more that your analysts are claiming to find in Johnson & Johnson's Baby Powder. Right?
A. By TEM, that's correct.
Q. And you had four analysts look at the same grid to analyze it for tremolite and anthophyllite asbestos. Is that correct?
A. That's correct.
Q. Your analysts are trained to distinguish between fibers and bundles. Correct?
A. Yes.

Q. As part of the exercises here they would have filled out information about what they were seeing. Correct?
A. Yes.
Q. Including whether they were seeing a bundle or whether they were seeing a fiber. Right, Dr. Longo?
A. Per the instructions of just doing structures, yes, they put that down.
Q. And you collected that information and put it into a report. Correct?
A. On the counting errors, yes. But the count sheets were there.
Q. And if we could look at the slide on the findings, I want to talk to you a little bit about the number of times your analysts agreed or disagreed on whether what they were seeing was a fiber or whether what they were seeing was a bundle. Are you with me?
A. Is this the tremolite or the anthophyllite one?
Q. This is the tremolite one. So your analysts did this thing twice. Right?
A. One for anthophyllite and once for tremolite.
Q. I want to talk about their findings when they did it for tremolite. Okay?
A. Okay.
Q. Those are the same four analysts who were

looking at the TEM samples in the MDL. Correct?
A. Correct.
Q. So these are the same four folks who back in September of 2018 looked at the same TEM grid and filled out individual count sheets like the one we just looked at. Right?
A. That is correct.
Q. So for grid opening No. 1 on our list, AE -- E-2, analyst No. 1 looked at the same grid opening as the other three and called it a bundle. Right?
A. Correct.
Q. Analysts 2 and 3 looked at the same exact thing and called it a fiber. Right?
A. Yes.
Q. And analyst 4 was with No. 1 and called it a bundle. Right?
A. Correct. There was 50 percent agreement on the structures. 50 percent said it was a fiber and 50 percent said it was a bundle.
Q. The second time everyone agreed it was a fiber. Right?
A. Correct.
Q. The third time, first three folks called it a bundle but analyst 4 called it a fiber. Right?
A. That would be 75 percent agreement.

Q. And I thought I heard you on your direct examination, Dr. Longo, I thought I heard you say there is no right. Do you remember giving that testimony?
A. Yes. You are not starting with a known. It is an agreement between the analysts. So you can't say any of them are wrong. It is their agreement. That's how the National Voluntary Laboratory Accreditation Program does it.
Q. Now, you are referring to the NVLAP standard that you guys are accredited with. Right?
A. Yes.
Q. You know what that standard requires; right, Dr. Longo?
A. 90 percent.
Q. It requires that every time you have a group of analysts like this looking at the same thing that they say they make the same call 90 percent of the time. Right?
A. Right. I think we have talked about this in the past. This test was only designed to determine the counting statistics. We never asked the analysts to do a fiber bundle agreement study.
Q. Let's go back to our list.
A. We have done that for NVLAP 90 percent --

Q. Dr. Longo, we are talking about what has been produced in this case and at issue here. So I want to talk about this study where, as part of recording what they saw, your analysts made the call about whether they were looking at a fiber or whether they were looking at a bundle; and if we go down this list, you can see that your analysts agreed only once. Correct?

A. They agreed not only once. The way you are doing that is inappropriate.

Q. Dr. Longo, you understand that there were times when three of your analysts didn't see anything at all and one of them thought they saw a fiber. Do you see that?

A. You can't compare that.

Q. You see there were times where three people didn't see anything at all but analyst 2 saw a bundle. Right?

A. No, this is not how you do these methods. You can't say that. What you are saying is it is the example I used earlier. If you had 100 analysts and 95 of them call it a bundle and five of them call it a fiber, you would draw a red line all the way through that.

Q. Here is the thing, Dr. Longo, the requirement is 90 percent agreement, and even on your chart you

showed on direct examination your folks were not agreeing 90 percent of the time. That's true?

MR. BLOCK: Objection. Compound question.

THE COURT: If I can go back to how many compound questions were asked today on both on direct and on cross. So are you really getting to that now?

MS. BROWN: Your Honor, I'm at the end of this, if this is an appropriate time for the Court, I think we're done with this report.

THE COURT: Okay. We'll take the break now.

THE DEPUTY CLERK: All rise.

(Recess.)

(Continued on the next page.)

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THE DEPUTY CLERK: All rise.

THE COURT: Thank you.

WILLIAM E. LONGO, resumed.

CROSS-EXAMINATION

BY MS. BROWN: (Continued)

Q. Welcome back, Dr. Longo.

A. Thank you.

Q. Dr. Longo, I want to talk a little bit about some of your PLM analysis in this case. Okay?

A. Yes.

Q. Prior to issuing your MDL report, you had not used PLM in your initial report. Correct?

A. That is correct.

Q. And in fact you were of the opinion back then in 2017 and 2018 that PLM basically wasn't going to work. Correct?

A. Using the standard method, yes, ma'am.

Q. You were of the opinion that PLM was not appropriate for this kind of cosmetic talc analysis. Correct?

A. That is correct.

Q. You testified that in your opinion PLM, which, just to orient us, consists of two of the three

methods you are using here. Right?
A. That's correct, the heavy density liquid Blount method and the ISO 22262-1 method.
Q. And so just to reorient us, Dr. Longo, you have used in the MDL ISO PLM. Correct?
A. Yes.
Q. Blount PLM?
A. That is correct.
Q. And ISO TEM. Correct?
A. Yes, the talc method by ISO for TEM.
Q. Two of those methods involve the polarized light microscopy method. Right?
A. Yes.
Q. Prior to the MDL you had testified in a number of different places that PLM was not an appropriate method for testing cosmetic talc?
A. That is correct.
Q. And you testified actually that you were of the view that it could not pick up trace levels of asbestos. True?
A. That is true.
Q. And so your original report on the eBay samples dealt only or employed only TEM. Correct?
A. That is correct.
Q. Now, here in the MDL you are now using two PLM

methods. Fair enough?
A. That is fair, yes.
Q. One of those comes out of the ISO method. Correct?
A. Correct.
Q. I would like to use the Elmo for a moment, if I could. You put up this slide earlier today with counsel for the plaintiffs. Do you remember that?
A. I do.
Q. And this slide speaks to the ISO 22262-2 method. Correct?
A. Correct.
Q. And one of the things that was a little strange about this slide is that the last sentence is cut off. Right, Dr. Longo?
Do you see that?
A. Yes.
Q. You do use 22262-2, correct?
A. Correct.
Q. And this was the subject of a slide when you were talking about how this is an appropriate procedure and one that you employed in the MDL. Correct?
A. That is correct.
Q. All right. So let's take a look, though, at the

actual standard, and if we can't get to the end of that sentence, which begins "quantify any asbestiform amphibole in the centrifuge." And so if we go to the actual method, we will see near the end of that sentence if we can bring it up.

Here is the rest of the sentence which says, "...quantify any asbestiform amphibole in the centrifuge by the point counting procedures specified in 14.2.3." See that?

A. Yes.

Q. Point counting is not a method you employed in this case. Right?

A. That is correct. The same method discusses point counting when you have two different size densities in the material such as talc and amphibole asbestos. It is in this method where it specifically says point counting is not recommended if you have materials that have two different types of densities and two different sizes because it will impart an error factor. Yes, it says that. But it also says not to use point counting.

Q. Let's go to the end of the sentence that we didn't see, that you should quantify asbestiform amphibole by point counting. My question was: You didn't do point counting here. True?

A. To be fair, we didn't do point counting because the method says don't do point counting when you have these types of samples.

THE COURT: Your answer is you did not do point counting?

THE WITNESS: That is correct, Judge.

Q. I want to give a little context to what we are talking about here.

When you employed the ISO PLM method, your analysts in some instances came up with a weight percentage of the amphibole that they were seeing. Is that correct?

A. That's correct.

Q. And in this case your analysts here recorded less than .1 tremolite actinolite. Correct?

A. Correct.

Q. And to get that information, your analysts did not use the point counting method. Correct?

A. No. They used the appropriate method but not point counting.

Q. What you tell us in your report -- first of all, your PLM analyst is Mr. Paul Hess. Correct?

A. Correct.

Q. And Mr. Hess did all of the PLM analyses in this case. Correct?

A. Correct.
Q. And what Mr. Hess did -- you tell us in your report -- is that for positive samples, a visual estimation of the quantity of asbestos observed was based on eye calibration through review of lab generated weight percent standards. Correct?
A. Correct.
Q. What that means is that Mr. Hess looked at the area that was supposedly covered by asbestos versus the entire area and compared them against a weight percent standard. Correct?
A. The entire of the other particulates, that's correct.
Q. What he used, according to your report, Dr. Longo, was a lab-generated weight percent standard. Correct?
A. That is correct.
Q. And the "lab generated," that means something produced out of your shop MAS. Correct?
A. Yes.
Q. And the way you made those weight percent standards was based on spiking a sample of Johnson & Johnson's Baby Powder. Right?
A. Correct.
Q. And once you spiked it, and mixed in what you or

someone at your lab considered to be appropriate materials, you got a weight percent as your standard. Correct?

A. Correct.

Q. And you, Dr. Longo, did not personally generate those standards. Correct?

A. I did not.

Q. An employee of yours did that. Correct?

A. That is correct.

Q. And you did not supervise or evaluate the employee who was doing that?

A. I don't understand the question.

Q. You didn't observe this employee. Ms. Victoria Panarello, when she was creating these MAS weight percentage standards. Correct?

A. That I don't recall. I'm in and out of the lab quite a bit.

MS. BROWN: Permission to read, your Honor?

THE COURT: Okay.

Q. This is from your testimony, binder Exhibit D-48. This is from your February 5, 2019 MDL deposition at page 271, lines 16 to 21:

You were asked the question in your MDL deposition 271, lines 16 to 20, as it relates to the work of Ms. Panarello?

"QUESTION: Did you monitor her when she did that?

"ANSWER: Did I sit here and stand there and watch her? No.

"QUESTION: Did you monitor her in any other way?

"ANSWER: No."

And you, Dr. Longo, to orient us to what's being done with these MAS generated-standards, which is what Mr. Hess is using when he was doing his visual examination about how much asbestos he's estimating is in the sample. Correct?

A. It is a visual estimate based on past standards, based on these petrographics that show what the various percentages are. So there is a couple of things.

Q. And you know that ISO, the standard on which you rely, it says that the accuracy and reproducibility of those visual estimates is very limited. Correct?

A. That's correct.

Q. You know, Dr. Longo, that you did not include, in connection with your MDL report, the weight standards that an employee of MAS created. Correct?

A. That's correct.

Q. And so either the MAS employee who created the

standard nor the MAS employee who used the standard have provided testimony in the MDL. Correct?

A. That is correct.

Q. You didn't include any information, Dr. Longo, in your MDL report and supporting materials that would allow someone else to replicate or figure out the work that your employees did in coming up with the weight percentages under PLM. Correct?

A. No, that's not quite fair. The experts for Johnson & Johnson have splits of every one of these samples. They have the ability to follow the protocol. They have the ability to do the ISO 22262-2. They have the ability to do the heavy liquid density separation. They did PLM. They have been in our lab and done TEM and verified these analyses. That's not fair to say there is no way to reproduce --

THE COURT: She's asking a very specific question about taking out the weight percentages. Where does that appear so someone could replicate. That was the focus of the question. Can you answer that question now.

Do you want to ask it again.

MS. BROWN: Yes, your Honor.

Q. To follow up on the Judge's question, and what I was after, Dr. Longo: This process that was done at

MAS used MAS-created weight percent standards. Correct?

A. Correct. You want to know what those weight percent standards are?

Q. No. I have a different question. You did not include those MAS weight percent standards in the materials you produced in the MDL. Correct?

A. The actual samples themselves?

Q. The standards, Dr. Longo, the standard that your employee used to estimate how much asbestos he thought was in a sample he was looking at under PLM; you did not produce those. Correct?

A. I'm just trying to understand. Produce the actual spiked talcum powder sample with the asbestos in it?

Q. Dr. Longo, you did not include in your MDL report any information concerning the data that was generated in your lab in creating these weight percent standards against which Mr. Hess compares the sample to determine how much asbestos he thinks is in Johnson's Baby Powder?

A. Now I understand. I did not produce that data.

Q. Dr. Longo, we can agree one of the cornerstones of the scientific method is that results are capable of validation. Fair?

A. That's fair.
Q. And validation is often described in terms of producing results that are both repeatable and produceable. Correct?
A. That is correct.
Q. And one of the things you did here as part of your work was to send some of the samples that your analyst tested to another lab. Correct?
A. Yes.
Q. And that's the J-3 lab that Mr. Poye works at. Correct?
A. Correct.
Q. And you have known Mr. Poye for a long time. Correct?
A. A few years.
Q. And you believe J-3 is a very good lab. Correct?
A. I do.
Q. In fact, it was you who selected Mr. Poye and recommended Mr. Poye as someone you could send your samples to in this context. Correct?
A. That's correct.
Q. And so what happened here is that in June of 2018 you sent 79 samples to Mr. Poye for testing by X-ray diffraction as well as polarized light

microscopy or PLM. Correct?
A. That is correct.
Q. And you instructed Mr. Poye at J-3 to use the ISO PLM method. Correct?
A. Correct.
Q. Now, Mr. Poye had done this exercise of verification of your work in the past. Correct?
A. Only the TEM. We had sent previous samples to him for the R-93 and the XRD, but we had not performed any R-93. So there was no verification in, I guess I'll call, the initial samples.
Q. In the initial eBay report you had also sent some of your work to Mr. Poye for testing. Correct?
A. That's correct.
Q. And Mr. Poye employed a test called the EPA R-93 test. Correct?
A. Yes, ma'am.
Q. That is not a method that you used here. Right?
A. No.
Q. And in the MDL, when you sent the MDL samples to Mr. Poye, you told him to use a method other than the R-93. Correct?
A. That is correct.
Q. You told him to use the ISO method. Correct?
A. Correct, since the ISO 22262-1 and 2

specifically talks about talc and cosmetic talc. It is the only method out there that specifically has cosmetic talc in it. That's why that method is chosen.

Q. And, ultimately, Dr. Longo, Mr. Poye tested 22 of the same samples that your analyst at MAS had tested by ISO PLM. Correct?

A. Yes, ma'am.

Q. What that means is we had your lab and Mr. Poye's lab running the same method on the same 22 samples. Correct?

A. Not really.

Q. Let me rephrase, Dr. Longo. You told Mr. Poye to use the ISO PLM method. Correct?

A. Correct.

Q. And you sent him samples from the samples that your shop had tested. Correct?

A. That is correct.

Q. And the reason, as evidenced in your report, that you did that was as part of a verification exercise. Correct?

A. That is correct.

Q. And the title of the report is in fact "Verification." Correct?

A. Can I see the report?

Q. Sure. We'll get that right away.

While I get that, Dr. Longo, the 22 samples that you sent to Mr. Poye, your lab had found asbestos in eight of them. Correct?

A. That is correct.

Q. And when you sent them to Mr. Poye, however, his lab did not detect asbestos in any of them. Correct?

A. That is correct.

Q. And he was using the same method, right?

And you, in fact, contained the results of Mr. Poye's ISO PLM in your February 2019 report. Correct?

A. That is correct. We are both using the ISO 22262-1, but the amount of work going into -- in particular analysis is different.

Q. I want to talk about that.

Before we talk about some information that you have learned recently, I want to make sure we are clear. The same test methods were used by both your shop and Lee Poye's shop. Right?

A. It is the same test method, but it is a different level of examination that we are using versus Lee Poye. It is not really fair to compare the two.

Q. When you sent the samples to Mr. Poye, you asked

him to employ the ISO PLM method. Correct?
A. Correct.
Q. And you didn't give him any other additional instructions about how long he should spend analyzing the samples. Correct?
A. No.
Q. And the ISO PLM method itself does not contain any restrictions or guidance or limitations about how long a microscopist should spend on a sample?
A. That's correct.
Q. When you sent the samples to Mr. Poye, you did not instruct him to use a particular piece of equipment or a particular lens on his equipment when he was analyzing these samples. Correct?
A. No. We asked him just to use the ISO 22262-1 method. However, we have a high resolution camera. You can see some of the photographs we have up there, how good the resolution is on a high definition screen. We have a different objective lens that takes out -- corrects the aberrations, and our analyst is not given any time that they have to complete a sample. Paul Hess may have spent two to six hours on an individual sample. I agree they are both the same method, but the level of analysis between the two is different.

Q. Let's break those down, Dr. Longo.

One of the reasons that you have come to believe would explain the fact that your lab found asbestos in eight of the samples, and Mr. Poye's lab did not, is a high resolution camera. Is that what you said?

A. Not the only thing.

Q. His resolution camera is one of the reasons you have come to believe may explain the separate results. Is that right?

A. A high resolution camera that is essentially a video camera, that is in realtime that he can examine the sample looking at a high definition monitor as he is moving the stage and the dispersion staining.

Q. As it relates to the high resolution camera, your shop in Georgia installed that camera specifically for analyzing talc for asbestos; didn't you?

A. We did.

Q. And all of the work your shop has done analyzing contaminate for asbestos has been done in the context of litigation. Correct?

A. That is correct.

Q. One of the things you testified, these results from Lee Poye's testing were made available to you in

July of 2018. Do you recall that?
A. I think that is when we got the report back.
Q. For a number of months following that you were asked questions, What do you think explain these different results? Do you remember that?
A. I do.
Q. All the way through your deposition in the MDL you remained unsure of what might explain the difference. Right?
A. Correct.
Q. And one of the things you posited in some of your depositions over that period of time was, Well, one thing we could do is send these samples to an independent third-party and have it checked out, right?
A. I don't believe I said that, is to have not a third-party but take the standards and get together with Lee Poye's group and see how it is different.
Q. You also testified, did you not, that one of the things you could do is have another lab check out the inconsistencies. Right?
A. I don't recall that. But that's possible.
Q. Is it fair to say, sitting here today, Dr. Longo, you have not sent those samples that we are discussing out to another lab? Correct?

A. I have not, no. The samples, of course, went to the RJ Lee group.
Q. And one of the things that has happened since your deposition in the MDL is that you have had a telephone conversation with Mr. Poye. Correct?
A. Correct.
Q. And it was you who initiated the telephone conversation. Correct?
A. Correct.
Q. And you called Mr. Poye to explore the reason that your analysts had eight positive samples where the J-3 lab had none. Correct?
A. Correct. I wanted to see if there was anything we were doing differently using a basic polarized light microscope and using the same method.
Q. And since that time you have satisfied yourself that you have identified the reasons for the differences between your shop's findings and Mr. Poye's findings. Correct?
A. It is an explanation. We should do some round robins and get things in line, but it is an explanation of the difference.
Q. And your current working explanation for why your shop reached a different conclusion than Mr. Poye's shop has to do in part with the high

resolution camera we were just discussing. Right?
A. It is everything. I can't say the high resolution camera does anything different but probably has more to do with the aberration corrected optical lens, the lens on that, and the time that goes into it.
Q. The other thing, Dr. Longo, that you just identified and which you mentioned a little earlier is the time that your analysts are spending on these samples versus the time Mr. Poye's folks are spending. Is that right?
A. According to Mr. Poye they didn't spend that much time on it.
Q. I believe it is your understanding, though, that Mr. Hess who does the PLM for the MDL -- correct?
A. Correct.
Q. Your understanding is that Mr. Hess spends about two to six hours per sample. Right?
A. Depending on what's in the sample, yes.
Q. And your understanding is that Mr. Poye's analysts do not spend as long. Correct?
A. For PLM analysis, that's what he stated to me.
Q. And having spoken to Mr. Poye and come to the understanding that a combination between a lens or the equipment and the time the analyst spent, you have

become satisfied, you have come to understand the differences in the results of your lab and Mr. Poye's lab. Correct?

A. It is an explanation. I'll be satisfied when we can come to the same conclusion with spiked samples; it is an explanation on the differences for eight out of the 22.

Q. And one of the things that Mr. Hess does when he examines a sample under PLM is to fill out a count sheet or some kind of a report about what he is seeing. Right?

A. Correct.

Q. And we looked at some of those this morning, but the report contains basic information, does it not, about who is doing the analysis and when they are doing it and what they are finding. Correct?

A. Correct.

Q. And you, of course, have produced all of those reports for us here today, and you reviewed them in advance of your testimony. Right?

A. I didn't look through the PLMs. Hopefully, they are all there.

Q. One of the things that is contained in the documentation of the samples that Mr. Hess reviewed are the dates on which he reviewed the samples.

Correct?
A. Correct.
Q. And so if we go back and we look at some of these PLMs, we can see, for example, how many samples Mr. Hess analyzed on, for example, December 13th, 2018. Correct?
A. That is correct.
Q. And so if we could go to the slide that starts out "this analysis" -- and we have a smaller version of the document, if it would be easier for you -- we can see that on December 13th Mr. Hess -- I'll put one up on the ELMO so we can orient ourselves here. This is the documentation of Mr. Hess's work at your shop. Correct?
A. It is.
Q. And so some of these issues from his PLM analysis in December 13th of 2018 -- the client here is the Beasley Allen law firm, and this is the result of his findings. Correct?
A. Correct.
Q. One of the things that you could do is go through all of these and figure out what Mr. Hess -- what samples Mr. Hess reviewed on which days. Correct?
A. That's correct.

Q. By doing that, Dr. Longo, you can figure out in fact how long it took Mr. Hess to review some of these samples. Fair enough?
A. That's fair enough.
Q. So let's take, for example, December 13th of 2018, and we can go back to the slide, and I'll represent to you, Dr. Longo, we have a packet of the PLM analysis that Mr. Hess did on December 13th, 2018. So we have sample 69757 he analyzed by PLM on that day.

If you pull all of the sample PLM sheets from December 13th we can see how much work Mr. Hess did on that day. Here we have the number of samples that were analyzed by Mr. Hess just on December 13, 2018. Is that right. Dr. Longo?
A. If those dates are correct, that is right.
Q. 13 samples Mr. Hess analyzed on December 13th, 2018. Right?
A. If those are the dates, yes. Yes.
Q. That would mean he spent 78 hours on December 13th, 2018, analyzing PLM samples if in fact he spent six hours a sample. True?
A. No, of course not. He wouldn't have been spending six hours on those.
Q. I'm sorry. Dr. Longo?

A. Of course not, in the same day he would not be spending six hours on the sample.
Q. Even if he spent on the low end of your estimation there, Dr. Longo, as it relates to the inconsistencies of Mr. Poye's lab, even if what Mr. Hess did on December 13th was spend only two hours a sample, he would have worked 26 hours on December 13, 2018?
A. If each sample took two hours, that is correct.
Q. And that's your working estimation how long these samples would take and understanding why you and Mr. Poye have reached different conclusions. Correct?
A. This is one of the factors that my analysts we keep track at times. It's the lens, it's the camera, et cetera. But they do get samples they spend a long period on.
Q. We know even on just the very next day, December 14th, Mr. Hess was real busy again; wasn't he? It looks like Mr. Hess again analyzed 13 or 14 samples the very next day?
A. That is correct.
Q. And there are other days contained in the documents you produced where you can put together the amount of time that any of your individual analysts spent on these PLM samples. Right?

A. That is correct.
Q. And the truth is, Dr. Longo, you have not done an analysis of how much time each of -- how much time Mr. Hess could have spent on any individual PLM sample, particularly the ones that were sent to Mr. Poye. Is that right?
A. Not to this degree, no. This is going from what the manager and the analyst said.
Q. And you have not, as it relates to the samples that your shop determined were positive and Mr. Poye's shop determined were negative, you have not done an analysis of whether or not the lens that you have on your microscope in any way affected those results. Correct?
A. No, that's not true. It does affect those results because that lens gives you much higher resolution to be able to see the single fibers inside the bundles which is the primary determination if it is asbestiform or greater than 20-to-1. It absolutely does.
Q. But what you have not done, Dr. Longo, you have not tried to determine whether amphibole particles can be identified by ISO PLM without using the special HD lens or equipment that you just mentioned. Correct?
A. We have used the old lens in the past, but it

gives you higher resolution. It absolutely helps.
Q. And you testified you don't know if it makes a difference. Do you remember that?
A. I don't remember quite that, but it absolutely makes a difference. The ability to see those single fibers in those bundles to distinguish it for 20-to-1 or greater, it absolutely does in conjunction with the high resolution camera, in conjunction with the high resolution monitor.
Q. What you testified to, Dr. Longo, in March of 2019 is that you have not tried to figure out whether there would be a difference in the analysis if the HD lens was used or if it was not used. Correct?
A. That is correct, in March.
Q. And you have not gone back to all of the count sheets to try and figure out if there would be a difference between the time your analyst spent and the time the analysts in Mr. Poye's shop spent. True?
A. That is true.
Q. And you have not, as of this date, sent those samples out for a round robin blind sampling to figure out why your shop found eight suspected detects and Mr. Poye's shop found none?
A. I have looked into that. I think a better avenue here is to get the analysts together. It is

not clear who we send out to round robins. Most all the labs are not doing it to this degree, but we'll get there at some point where we get the two analysts together so they could sit down at the microscopes together and work out why one saw positive on eight samples by ISO and one has not.

THE COURT: How long has it been since you were aware there was a difference in what the labs found?

THE WITNESS: When we put this report together.

THE COURT: Which was?

THE WITNESS: The MDL report.

THE COURT: The date?

THE WITNESS: I think the first one we issued was in November or January.

Q. Do you recall the analysis from Mr. Poye as contained in your own report was made available to you in July of 2018? Correct?

A. Correct.

THE COURT: The reason for my question is some point we'll get together. It has been a year. You haven't done it. You don't have an answer as to the differences because you haven't had that sitdown.

THE WITNESS: I have an answer because of the

optics, because of the high definition camera, and Lee Poye's lab does not have that. To actually sit the analysts down, we have not done that.

THE COURT: But that has not been done. Correct?

THE WITNESS: No, that has not been done.

THE COURT: Thank you.

MS. BROWN: I have no further questions. Thank you.

REDIRECT EXAMINATION

BY MR. BLOCK:

Q. Dr. Longo, I want to try to be more specific about the last 20 minutes or so questioning regarding Lee Poye, the microscopists in his lab J-3, and what tests you were talking about with Johnson & Johnson's lawyer. Okay?

A. Yes.

Q. Now, with respect to what was being referred to as ISO PLM, was that testing involving polarized light microscopy without heavy liquid separation?

A. Correct.

Q. So polarized light microscopy without heavy liquid separation. In those questions and answers we just heard when Johnson & Johnson's lawyers were

referring to ISO PLM, was that referring to polarized light microscopy without heavy liquid separation?
A. Yes.
Q. Is doing polarized light microscopy without doing heavy liquid separation a sensitive method for detecting asbestos in talc?
A. No, it is not as sensitive, when you use the heavy liquid separation.
Q. Why is that?
A. Because it is just like the TEM analysis you are concentrating the heavy amphiboles. So you are removing all the talc. It is essentially the Blount method published in 1991.
Q. And when J-3 Lab did the polarized light microscopy without first doing the heavy liquid separation, it was called ISO PLM. In the questioning, the J-3 lab did not detect asbestos. It was not detected?
A. That's correct.
Q. Whereas, your lab for that specific analysis, polarized light microscopy without heavy liquid separation, found asbestos in what percentage of the samples approximately?
A. 30 percent.
Q. So J-3 versus MAS, 30 percent.

Now, could we go to the ELMO, please.

So the discussion regarding the discrepancies in the ISO PLM that was being discussed in the last 20 or so minutes of your cross-examination related to PLM without heavy liquid separation. Is that true?

A. That is true.

Q. Let's look at what ISO says about what type of microscope should be used if heavy liquid separation is not used. Are we looking at that chart in 2262 that we mentioned earlier?

A. Yes, we are.

Q. Let's read it closely. It says:

"For amphibole either centrifugation and heavy liquid followed by evaluation of the centrifuge by microscopy."

Do you see that?

A. Yes.

Q. If you do heavy liquid, before you analyze under the microscope, does it say you can use the PLM microscope, the TEM microscope, or an SEM microscope?

A. Correct.

Q. Then it says:

"Or preparation of TEM specimens from the untreated material is the optimum procedure followed by X-ray diffraction using the mass counting

procedures."

Do you see that?

A. I do.

Q. Does ISO 22262 specifically say here it's not an optimum procedure to use polarized light microscopy without first doing heavy liquid separation?

A. That is correct.

Q. So all of the questions and answers about the inconsistencies between your lab and J-3 regarding so-called ISO PLM had to do with PLM that was done without first doing heavy liquid separation. Is that correct?

A. That is correct.

Q. Now, J-3 -- and that is not viewed as an optimum procedure by ISO. Correct?

A. That's what it states, yes.

Q. Would you expect your lab or any lab to be effective in detecting asbestos in talc using that method in terms of detecting it at the same rate it would detect it if it first used heavy liquid separation?

A. No. The heavy liquid separation increases the sensitivity and increases the ability to see at lower concentrations.

THE COURT: Didn't you direct them to only do

this? You told them what to do, and this was the only testing. You never suggested to them that they do the heavy liquid. Correct? So you dictated the way it would be done. Wasn't that your testimony? Did I mishear?

THE WITNESS: To J-3?

THE COURT: Yes.

THE WITNESS: I told them to do the ISO PLM method. I didn't tell them to do the heavy liquid density.

THE COURT: Exactly.

MR. BLOCK: I want to follow up on that, your Honor.

BY MR. BLOCK:

Q. Was the purpose of that to compare the effectiveness of using polarized light microscopy to detect asbestos in J&J's talc with and without heavy liquid separation?

THE COURT: You could have done that in-house -- I'm sorry. He said he sent it out to J-3 to confirm results and get an independent lab looking at them. And then you will think to replicate the same test, not to say how it would be different if we don't do this. That would be in-house. Didn't you say you sent it out for confirmation? Wasn't that your

purpose?

THE WITNESS: I sent it out for doing ISO PLM. Mainly, I sent it out for XRD, which we don't do in-house.

BY MR. BLOCK:

Q. Is XRD a sensitive method for detecting asbestos in cosmetic talc?

A. It cannot detect asbestos in cosmetic talc. It can only detect that there is a mineral present that is either tremolite anthophyllite or chrysotile but only at very high concentrations as compared to the other methods.

Q. Let me show you what will be Plaintiffs' Exhibit 4, which is a document from appendix A of your reliance materials at No. 18.

MR. BLOCK: We'll call this Exhibit 4.

Q. Dr. Longo, are you familiar with Plaintiffs' Exhibit 4?

A. Yes, sir, I am.

Q. What is it?

A. That's called the stimuli to the revision process, and it is to revise the USP talc method that currently is what is used, as stated by the FDA, to determine if there was asbestos in cosmetic talc.

Q. Was this document done in response to a request

from the U.S. FDA to look at modernizing the USP talc monograph?

A. Correct.

Q. And Johnson & Johnson said that you don't use the USP method when you test for talc. Do you recall that?

A. I do recall it.

Q. Does this document identify the deficiencies in the USP talc method?

A. Yes, sir, it does.

Q. And under the USP talc method, if we look at what the document says, it says:

"This underscores the need to modernize the current monograph for two reasons."

What is the IR and XRD method which is this USP monograph testing method?"

A. It stands for infrared analysis, which is not accepted by any government agency -- EPA, OSHA, et cetera -- to determine asbestos in bulk samples. And X-ray diffraction.

Q. So under this USP talc method, if the talc is tested according to this method, is IR or XRD the method that is used?

A. Yes.

Q. And if the test comes up as nondetected, is the

test over? Is that it?
A. Yes, it is.
Q. Here it says that both the IRD and XRD have relatively high detection limits for asbestos. Do you see that?
A. Yes.
Q. Is that why you have not used that method to test Johnson & Johnson's talc for asbestos?
A. Well, we did use XRD, just to see how it compared to the polarized light microscopy, the heavy liquid separation, and TEM; and for all the samples where XRD was run in the MDL, for Italian and Vermont they were all negative.
Q. Is that what you will expect based upon your review of the published literature, based upon your review of this stimuli document from 2004, and based upon the detection limits of the IR and XRD, that makes up the USP, is that what you will expect under the USP XRD method, that you would not detect asbestos in cosmetic talc?
A. It has to be a very high concentration of asbestos to be in the cosmetic talc by XRD to be positive. The modern day equipment can get down to about .2, .1 percent. That's about it for XRD. So I would not recommend the use of it at all. And then if

it is positive, you have to go and do polarized light microscopy. So why not, if you are going to use polarized light microscopy and TEM, why not just start off with that.

Q. So in terms of your work and the work of the J-3 lab, did both labs look at Johnson & Johnson's talc samples using TEM with heavy liquid separation?

A. Yes.

Q. Is that one of the methods that is considered an optimum method under the ISO 22262 that we looked at?

A. Yes.

Q. Can you describe the level of consistency in terms of the results when MAS looked at Johnson & Johnson's talc products with one of the optimum methods TEM with heavy liquid separation and when J-3 used that same methodology?

A. Yes.

Q. What was the level of consistency? Can you generally summarize it?

A. We had about the same percentages of positives. In the 68, 69, to 70 percent range.

Q. And we looked at earlier that when J-3 looked at 22 asbestos structures from MAS, they verified 22 -- verified 20. Correct?

A. They verified 20, and they verified the amount

of bundles percentage-wise that we found.
Q. Is that greater than 90 percent in terms of the verification of the asbestos structures that MAS found?
A. Yes.
Q. Then MAS verified asbestos in 9 out of the 11 samples that J-3 found asbestos in. Is that correct?
A. That is correct.
Q. And one of them the grid opening was blown out. Is that correct?
A. That is correct.
Q. And is that something that can happen or that's a common problem if multiple labs are looking at grid openings?
A. That is correct.
Q. So when the optimum method was used, one that is recommended by ISO as having better sensitivity, were the results between MAS and J-3 consistent in terms of the asbestos in Johnson & Johnson's talc?
A. Yes.
Q. And would you recommend, Dr. Longo, the use of polarized light microscopy without heavy liquid separation based upon the testing that your lab did and the testing the J-3 lab did?
A. No. I actually think you have to do -- you have

to get the equipment -- you have to get, I believe, the right objective lenses. But I believe you should do all three because you are looking for a needle in a haystack, and, also, if you have just chrysotile asbestos at a high enough concentration, you may be able to see it by PLM without heavy liquid density. I think the best characterization of these samples is ISO 22262-1 PLM, the heavy density liquid PLM and TEM. XRD I don't see any utility in.

Q. Does the use of heavy liquid separation prior to analysis by the polarized light microscope or the TEM microscope produce the most sensitive and reliable analysis for detecting asbestos in talc?

A. Yes, it does.

Q. Would that be the method that's recommended by ISO, and that's consistent with Dr. Blount's published peer-reviewed study?

A. That is correct.

THE COURT: Go back to my question, because you really haven't answered it. I'm still at a loss why you even sent these samples to J-3, particularly when you just said without the heavy liquid separation, unless there is heavy concentration of the asbestos, you are not going to see it without the separation.

You already knew from your testing you were having trace evidence. You knew they weren't going to get anything. What was the purpose sending it to this lab? I don't understand you haven't answered it.

THE WITNESS: We are going to publish this, and I think it is good to compare all the different methods.

THE COURT: You could have used that method in your own lab to determine that. You said you did this for purposes of some confirmation of an independent lab doing it. This independent lab did nothing to add to the inquiry. I think you are changing why you are saying you are doing it.

THE WITNESS: We sent these samples off to have XRD.

THE COURT: Not these samples, the earlier samples were not the latest ones. You sent earlier ones out, not these.

Q. Dr. Longo, the samples that were sent to J --

A. Was in July.

THE COURT: Looking at the testimony, I got there were some other earlier samples. Were these later samples sent for XRD?

THE WITNESS: Yes.

MS. BROWN: All of the MDL samples were sent

to J-3 for XRD. They were all nondetect. There was a subset that were also sent for ISO PLM --

THE WITNESS: No. That's not correct.

Q. Dr. Longo, what is your understanding of that?

MR. BLOCK: Your Honor, we can supplement once we've all looked into that issue.

THE COURT: I would like to get his answers today. He's given a report. He's been deposed. He is here today. Now is his day for him to tell the story.

MR. BLOCK:

Q. Dr. Longo, what is your understanding in terms of the samples that were sent to J-3 for PLM analysis? Is it your understanding those were MDL samples?

A. There were 79 MDL samples before we even chose which ones we were going to do for TEM. We had the initial batch of 79. I sent them all to J-3 and said do XRD and do ISO 22262. We had not started doing the ISO because you see all our analyses in December.

The next 22 were ones that came in but we only sent them for XRD. Then there was another set of two samples we only sent for XRD since we were doing the other analysis in-house. The XRD is what we don't have. So we didn't send them out again after we analyzed ourselves on additional samples.

MS. BROWN: If it is helpful to the Court, Dr. Longo's report from February 1st, 2019, at page 49 of 56 gives the results of the J-3 XRD and PLM analysis.

THE COURT: I only have the January 1st on the bench.

MS. BROWN: It is our Exhibit D-1, and that would be in the exhibit binder from my exam.

(Pause.)

THE COURT: Go ahead.

Q. Dr. Longo, I want to get back to the methods that your lab used and some of the questions that you were asked about the published methods. Okay?

A. Okay.

Q. Let's look at, if we can, look at the ELMO.

Dr. Longo, we looked earlier at the three steps to do the TEM analysis to determine if there is asbestos present. Do you recall that?

A. Yes.

Q. And the three steps we outlined earlier were the morphology, and we have the morphology listed here of greater than 5-to-1 aspect ratio or equal to, greater, or equal to 0.5 microns in length and substantially parallel sides. Do you recall that?

A. Yes, sir.

Q. And when we went through the EDXA part, the standard methods for identifying asbestos in talc, you told us about determining the mineral chemistry and comparing the EDXA spectra with a reference standard. Do you recall that?

A. Yes.

Q. You told us earlier about the third step being SAED looking at the crystalline structure, comparing the SAED pattern with reference standards, making the determination of asbestos based upon those three steps. Do you recall that?

A. Yes, sir.

Q. Now, on cross-examination you were asked about whether you determine how the asbestos grew or how the asbestos formed in nature, the growth habit.

Is there anything in the standard three-step TEM method that has a test method to determine the growth habit or calls for the determination of the growth habit?

A. No. As a mineralogist or a materials scientist, you can say it grew in a crystalline habit; and if it is fibrous, like asbestos, you could say it is fibrous, and then meets the definition. There is no way to trace back to a growth habit and say this came from that growth habit.

Q. When you published in the peer-reviewed literature studies identifying asbestos, did you ever hear back from the peer reviewers that you missed a step, that you failed to determine the growth habit?
A. No.
Q. Is there anything in the three-step TEM test methods set forth in ISO, set forth in EPA AHERA, set forth in ASTM 5755 -- you asked about the tensile strength. Is there even a test for that in the generally-accepted methods for TEM microscopy?
A. No, it's impossible. It's something that cannot be done.
Q. Same thing for flexibility. You were asked, Dr. Longo, Didn't you determine the flexibility of the asbestos to make sure it was asbestiform? Is there anything in the generally-accepted three step TEM test methodology that calls for determination of the flexibility of the asbestos structure that is found?
A. In TEM analysis you cannot manipulate a microscopic fiber. It is impossible. It is impossible to determine the tensile strength in TEM or even an optical microscope, and they don't even tell you what high tensile strength means, how high, how low.
Q. You were asked whether you counted particles

that were less than a 5-to-1 aspect ratio and why you didn't do that. Do the generally-recognized test methods require you to count the particles as asbestos that meet the morphology requirement, that meet the EDXA requirement, and meet the SAED requirement?

A. No. You are only required to count them that are greater than, equal to 5-to-1 aspect ratio.

Q. When you were asked, Well, Dr. Longo, you did not count particles that were less than a 5-to-1 aspect ratio; is that following the method?

A. It is not following the method, but extra work in previous not MDL samples, we did count everything greater than or equal to 5-to-1 aspect ratio as well as went back and counted everything less than 5-to-1 aspect ratio.

Q. But in order to identify an asbestos particle as asbestos, if the three steps in the TEM method are satisfied, the morphology, the EDXA and the SAED is that asbestos under EPA AHERA?

A. Yes.

Q. When you identified asbestos in Johnson & Johnson's talc applying the generally-accepted requirements by TEM for morphology EDXA and SAED, is that asbestos under EPA AHERA?

A. Yes.

Q. Is that asbestos under ASTM 5755?
A. Yes.
Q. Is that asbestos under ISO 22262-2?
A. Yes.
Q. Is that asbestos under Johnson & Johnson's own TEM method, TM 7024?
A. Yes.
Q. And you were shown a definition of asbestos, I think from the EPA, but did you also apply the EPA's rules on what is non-asbestos?
A. Yes, we did.
Q. Is any of the asbestos that you identified in J&J's talc non-asbestos, meaning, quote, incomplete or unobtainable electron diffraction patterns, a non-asbestos EDXA or a non-asbestos morphology, did any of the asbestos you identified in Johnson & Johnson's talc qualify as non-asbestos based on the EPA AHERA generally-accepted test method?
A. No.
Q. You were asked about your lab analysts. And were the lab analysts at MAS required to follow the generally-accepted test methods for TEM and polarized light microscopy that you have described here to the Court?
A. Yes.

Q. And is one of the ways that you are able to rely upon the work of your lab analysts the training they received, as you described earlier?
A. Correct.
Q. Is another way to determine the reliability of the work of your analysts the supervision they get at MAS?
A. Correct, the quality control, the co-efficient variation for error rates, the continuous look in seeing how they do.
Q. Dr. Longo, when you submitted this report for the MDL with your name on it, what did you do to assure that the data was reliable in terms of all the backup data, all the count sheets, all the images, and all the work done by your trained analysts?
A. To go through it and review it, have others review it, have questions, sit down with the analysts. So I've spent a lot of time with it.
Q. Are you aware of the work of the RJ Lee Group who have tested the MDL samples for Johnson & Johnson?
A. I am.
MS. BROWN: Your Honor, I object to this as not being at issue. There is no report from RJ Lee in this case regarding MDL samples. It is not disclosed. So I don't know what he is talking about.

THE COURT: Let's move on.

BY MR. BLOCK:

Q. You were asked whether the FDA had ever adopted the heavy liquid separation method. Do you recall that?

A. I do.

Q. Does the FDA even have any test method for the testing of talc that the FDA has adopted?

A. No.

Q. Is cosmetic talc even a regulated product in the United States?

MS. BROWN: Objection. Far beyond his asking to be able to talk about the FDA's regulated authority as it pertains to cosmetic talc.

THE COURT: Sustained.

BY MR. BLOCK:

Q. You were asked whether the heavy liquid separation was adopted by the government. Is there a government test for testing asbestos in talc?

A. No.

Q. Okay. So when you applied the generally-accepted methods, including EPA AHERA, is that a test method to determine whether there is asbestos present and how much asbestos is present?

A. Could you repeat that?

Q. Let me withdraw the question.

Is ISO 22262-2, which you followed in this case, is that a generally-accepted test method that includes heavy liquid separation?

A. Of course. It is an international standard.

Q. Is that the only test method specific to talc that has been published that exists?

A. Outside of the USP method with the IR and XRD, that is the only method I'm aware of specific for cosmetic talc using the appropriate methods for the detection limits.

Q. Let's go back to the USP method. What is USP?

A. USP is the -- is essentially the methods that FDA will require for certain types of tests.

Q. Okay. So the USP, which consists of the IR method, and we're looking -- let's talk a little more about what this document is.

This is entitled "Stimuli to the Revision Process," and this is the document that was written -- was this document written by the USP Expert Talc Panel?

A. Yes.

Q. Is it from 2014?

A. Yes.

Q. In terms of what is said here about the USP

method, next to "X-ray diffraction," it says:

"Limit of detection may be too high for public health and regulatory purposes."

And you agree that the detectable limits for X-ray diffraction is too high to rely upon for the detection of asbestos and cosmetic talc particularly as compared to using heavy liquid separation and polarized light microscopy or TEM microscopy?

A. Yes, I agree.

Q. This USP group said as follows:

"Detection of asbestos in talc by the instrumental methods outlined above can be enhanced through the concentration of asbestos particles or separation of asbestos from obscuring or confounding particles."

Do you see that?

A. Yes, sir, I do.

Q. Is that what you were explaining to the Court this morning, that the use of a concentration technique, which heavy liquid separation technique is an example, can enhance the sensitivity of the method to allow better detection of asbestos in talc?

A. That is correct. There are different types of concentration methods. The heavy liquid separation happens to be one of them.

Q. You were asked earlier about the levels of asbestos in talc and whether the levels of asbestos in talc could or could not translate to a potentially hazardous or significant exposure. Do you remember that?

A. Yes.

Q. It says: Research by the U.S. EPA and others have shown disturbance of matrixes -- for example, soil, vermiculite insulation, containing asbestos concentration identified by the lower detection limits of PLM, well below 1 percent asbestos by weight, the limit historically used by the U.S. EPA to define asbestos-containing material can generate potentially hazardous exposure."

Do you see that?

A. I do.

Q. Let's talk about some questions you were asked about the amount of asbestos by weight and the significance of that.

Now, have you published in the peer-reviewed literature on the amount of exposure from the use of products that contain asbestos?

A. I have.

Q. And when we look at a product like Johnson's Baby Powder, and we look at this example, and we look

at the concentrations you have found in the MDL samples, what range are we looking at?

I think we looked before at tens of thousands of asbestos structures per gram up to hundreds of thousands?

A. The lower limit is approximately seven, eight to thousand, where we are finding one asbestos fiber or one asbestos bundle up to 260,000, or thereabouts.

Q. So in this Johnson's Baby Powder material, is this material a material that would be what's called friable by the EPA?

A. Yes.

Q. What is the significance of that, that you found 63,800 asbestos structures per gram of this Johnson's Baby Powder? What's the significance of the fact that this is in a powdery form when it's used either in the vaginal area, or maybe put on a person's chest or under their arms? What is the significance that it's in a powdery form?

MS. BROWN: Your Honor, I'm going to object. He was very clear on cross-examination he has not done an exposure study, and he is not giving a health effects opinion. So beyond a calculation he didn't do, this question is asking for an undisclosed opinion.

MR. BLOCK: Your Honor, I think it's responsive to cross. I didn't bring out exposure levels.

THE COURT: You tried to this morning and we stopped. So let's move on. We're not going down this avenue.

BY MR. BLOCK:

Q. As a material scientist, Dr. Longo, is there anything holding the asbestos together? Is there anything encapsulating the product that's keeping it from becoming airborne?

A. No, there is nothing there. It is a fine powder. It will be able to get up in the air when it is disturbed, and whatever is in that powder.

Q. Dr. Longo, in response to the questions on cross-examination regarding your opinions that there would be a significant exposure from the use of Johnson's Baby Powder, have you relied on the peer-reviewed literature in forming your opinions?

A. Yes.

Q. Have you relied in part on a study by Drs. Gordon and Millette that studied the amount of asbestos released when cosmetic talcum powder is used?

A. Yes.

Q. And have you also -- and did that test show

significant levels of exposure, thousands of times higher than may be present in the background air?

MS. BROWN: Objection, your Honor. He was very clear he did not attempt to quantify exposure here, and counsel is reading other people's articles and asking him to agree.

MR. BLOCK: She asked what he meant by "significant" in his report.

MS. BROWN: And he made clear he has not done a calculation and has not quantified at all.

THE COURT: I have that testimony. That's where it ended.

BY MR. BLOCK:

Q. Just in terms of structures per gram, let me ask you a question about that:

Are you aware from Johnson & Johnson's historical documents that Johnson & Johnson determined the --

MS. BROWN: Objection. This is again just trying to get in a quantification of exposure opinion he did not give and quite clearly said he has not done in this case.

THE COURT: I would like to stick with his methodology and the basis for his opinion.

BY MR. BLOCK:

Q. Dr. Longo, one of the questions on cross-examination about your methodology is the definition of asbestos. Do you remember that?
A. Yes.
Q. Are you aware of Johnson & Johnson's definition of asbestos that is contained in the company's specifications that it has outside of Court?
A. Yes.
Q. And does Johnson & Johnson's definition of asbestos that it uses in its own specifications outside of court say anything about growth habit?
A. No.
Q. Does it say anything about tensile strength?
A. No.
Q. Does it say anything about flexibility?
A. No.
Q. Does it contain the word "asbestiform"?
A. Not that I recall. It just says "fibrous."
Q. And under Johnson & Johnson's own outside-of-court definition, as contained in their documents, is fibrous tremolite, fibrous anthophyllite, and fibrous actinolite the same types of asbestos you found in Johnson & Johnson's talc defined by Johnson & Johnson as asbestos?
MS. BROWN: Objection. If there is a

document, if I could see it.

MR. BLOCK: Yes, we'll mark this as Exhibit 5.

MS. BROWN: Was this on his reliance list?

MR. BLOCK: Dr. Longo has been cross-examined about this document.

MS. BROWN: It was not on his reliance list here in the MDL. I object now to him speculating about a company document that was -- your Honor already ruled on this document because they put it on the supplemental list and we objected at that time. Your Honor was very clear, if it was not originally disclosed, and we had the opportunity to question Dr. Longo on it, it was not coming in now.

MR. BLOCK: Your Honor, this is redirect examination, and Dr. Longo, there was a cross-examination that suggested that Dr. Longo is not using an appropriate scientifically reliable definition of --

THE COURT: I don't know that J&J gives the appropriate scientific definition either, so I don't use them as my standard. That's not the basis for it, and that's not what we're going to use that document for, unless you want to suggest they set the standard. I don't think you do.

Let's move on.

MR. BLOCK: It's a generally-accepted definition in part because the defendant is using it.

THE COURT: I don't know in what context, I don't want to get into what context, why it was put in there. This is not like looking at, as you presented it to me, whether it is some standards set by the government or whatever. That's not what it is.

We can take anybody's corporate document and say this is how that corporation defines asbestos. This is how it's been defined by John's Manville, or this is how it's been defined by Colgate Palmolive. I'm not going to get into that. That's not setting my standard for today. I think you have given me the things you would like to set the standard.

MR. BLOCK: Thank you, your Honor.

BY MR. BLOCK:

Q. Dr. Longo, let me ask you about another document, if you could go to tab 43 of your notebook.

Now, we're looking at tab 43 in Exhibit 1 for Dr. Longo.

Dr. Longo, you were cross-examined by Johnson & Johnson's lawyer, and you were asked whether your lab made a determination of how the asbestos that was identified in Johnson & Johnson's talc was formed.

Do you remember that?

A. Yes, sir.
Q. Are you familiar with an EPA document from 2006 that discussed whether you need to determine how an asbestos structure was formed in nature or its growth habit in order for that structure to be identified as asbestos under the generally-accepted test methods?
MS. BROWN: Your Honor, I have properly identified the document for the record as the EPA Region 9 document and put it on the record where it is, please.
Q. Are you also aware it is an EPA Region 9 document?
A. Yes.
Q. At the end of the document it says the document reflects the testing procedures and policies of the EPA as a whole?
A. Yes.
Q. So looking at this document at page 11 we have a slide. It says, quote:
"It is the position of EPA, the U.S. Centers for Disease Control and Prevention, Agency For Toxic Substances and Disease, Registry and National Institute for Occupational Safety and Health, and the American Thoracic Society, among others, that microscopic structures of amphibole and serpentine

materials that are asbestiform and meet the size definition of PCM fibers should be counted as asbestos regardless of the manner by which they were formed."

Is that what it says?

A. Yes, sir, that's what it states.

Q. And PCM fibers, does that refer to phase contrast microscopy?

A. It does.

Q. How is that similar or different to PLM, which you've discussed in your testimony?

A. Well, PCM is an optical for fibers. This is for air samples. Polarized light microscopy is for bulk samples. If you want to compare air samples, this 3-to-1 aspect ratio is lower than the standard we use which is the AHERA and the other counting methods that it has to be at least a 5-to-1 aspect ratio.

Q. Does this statement by EPA in tab 43 of Plaintiffs' Exhibit 1, this document from EPA Region 9, dated April 20th, 2006, does this reflect the fact that if you follow the test method, whether it be for TEM or PLM microscopy, and it satisfies the method, that it is properly identified and counted as asbestos regardless of the manner by which the asbestos structure was formed?

A. Correct.

Q. When you published in the peer-reviewed literature, looking, again, at Tab 12, your article where you analyzed vermiculite and found tremolite asbestos and other types of asbestos, and you applied the EPA AHERA method, did you apply the EPA AHERA method any differently than you did in this case?
A. No, sir.
Q. So your scientific methodology that was subjected to the peer review process here, where you applied the EPA AHERA method, did it follow the same three-step TEM that you've used in identifying asbestos in Johnson & Johnson's talc?
A. Yes.
Q. And did you publish in the peer-reviewed literature that even though a material which in this case was vermiculite has concentrations often less than 0.1 percent asbestos, that it can still cause significant exposures that can be in excess of current regulatory exposure limits?
A. Yes.
Q. You were asked about the OSHA PEL. Are you familiar with the OSHA regulations?
A. Yes.
Q. Is the OSHA PEL recognized by OSHA as to not be a safe level of exposure of asbestos?

A. That's what the preamble says.
Q. And if we look back at Plaintiffs' Exhibit 4, which is the USP expert panel, is that what they say when they are talking about talc? In this article it says:

"There are currently no established safe levels of asbestos exposure. This underscores the efforts of the talc EP, expert panel, to identify the strategies and methods for reducing the potential for asbestos contamination of talc to the lowest feasible levels."

Is that what the USP expert panel concluded in 2014?
A. That's what it states.
Q. Does that same USP expert panel also recommend including additional sample preparation/concentration methods to improve the feasible limits of detection as indicated C section 5.4?
A. That's what it states, yes.
Q. Do you agree based upon your testing of Johnson & Johnson's talc that a concentration method such as the heavy liquid separation should be used to have the most sensitive method in detecting asbestos in talc including Johnson & Johnson's talc?
A. That is correct.

Q. And isn't it true that Johnson & Johnson does not use any concentration method or heavy liquid separation method despite the recommendations of the USP expert panel in 2014? Is that true?
A. Not that I'm aware of.
Q. Have you reviewed Johnson & Johnson's test methods for testing asbestos in talc?
A. I have.
Q. Have you ever seen any evidence that Johnson & Johnson knowing what the --
MS. BROWN: Objection.
THE COURT: I was waiting for you to get up.
Sustained. I thought you were a little slow on your feet this time.
MS. BROWN: I was a little slow. I apologize. Thank you.
BY MR. BLOCK:
Q. Dr. Longo, you were asked about cleavage fragments. Do you recall that?
A. Yes, sir.
Q. If the three-step TEM method is met -- is it a cleavage fragment?
A. I'm sorry?
MS. BROWN: Your Honor, I don't mean to interrupt, but I think we are coming close to an HOUR

on the redirect, and I want to object about the length and the breadth and the scope of the redirect.

THE COURT: I assume you are finishing now.

MR. BLOCK: May I have another 10 minutes?

THE COURT: I gave you extra time this morning too. You have taken more than the cross has been. Let's finish up for the day.

BY MR. BLOCK:

Q. If the TEM three-step method is met as set forth in the generally-accepted methods you described to the Court, is the particle -- whether it be tremolite, anthophyllite, or actinolite -- a cleavage fragment or asbestos?

A. It is asbestos.

Q. And in terms of a cleavage fragment, the Campbell article that you were asked about from 1977, what does it say is the normal aspect ratio for a cleavage fragment?

A. Less than 3-to-1.

Q. And did you count any tremolite, actinolite, or anthophyllite that you found in Johnson & Johnson's talc that met that definition of a cleavage fragment that you just stated from the Campbell article in 1977?

A. No. For what we called regulated asbestos, it

all had the standard methodology that is used in TEM labs and by the EPA.

Q. Dr. Longo, you were asked whether your lab has met the standard from the NVLAP when it comes to the distinction between fibers and bundles. Do you remember being asked that on the cross?

A. Yes.

Q. And has your lab been subject to annual audit testing by the NVLAP on the issue of whether your analysts are properly distinguishing between fibers and bundles at a rate of at least 90 percent?

MS. BROWN: I object. This is the subject of the report that was added to the supplemental list after his deposition. This was issued in June. This certification was only produced in June, and your Honor ruled it was not an appropriate area of inquiry in this case. I object to the use of the document and this line of questioning.

MR. BLOCK: Your Honor, the question is about historical testing by the NVLAPs during the years 2014 to 2017. It's not new and it is directly responsive to the cross-examination that suggested that Dr. Longo's lab had not met --

THE COURT: I'm going to permit your question, not the document. Don't introduce the document. You

can ask the question.

BY MR. BLOCK:

Q. Dr. Longo, was your lab subjected to NVLAP audit testing on the issues of fibers and bundles?

THE COURT: When?

Q. And when was that, Dr. Longo?

A. Every year.

Q. Let's talk about the last five years. Has your lab been subject to that testing during any time in the last five years?

A. I reviewed 2017, 2016, 2015, 2014.

Q. In that time period between 2014 and 2017, are these the analysts that tested Johnson & Johnson's talc for the presence of asbestos in the MDL?

A. Yes. Some of the same analysts in 2017, they are all of the same analysts.

Q. For the 2017 testing that was done by the NVLAP, what was the level of consistency in terms of validation of the analysts that tested Johnson & Johnson's talc for asbestos to accurately determine whether the asbestos structure is a fiber or a bundle?

A. It was above 95 percent agreement.

Q. How about those previous three years, 2016, 2015 and 2014?

A. They were all above 95 percent agreement.

MR. BLOCK: Dr. Longo, thank you very much. I have no further questions.

Thank you, your Honor.

THE COURT: Okay. We're done for the day.

You are excused, Dr. Longo. You may step down.

(Witness excused.)

(Court adjourned at 4:20 p.m.)

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I N D E X

E X H I B I T S

C E R T I F I C A T E

PURSUANT TO TITLE 28, U.S.C., SECTION 753, THE FOLLOWING TRANSCRIPT IS CERTIFIED TO BE AN ACCURATE TRANSCRIPTION OF MY STENOGRAPHIC NOTES IN THE ABOVE-ENTITLED MATTER.

S/Vincent Russoniello
Vincent Russoniello, CCR
Certificate No. 675

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